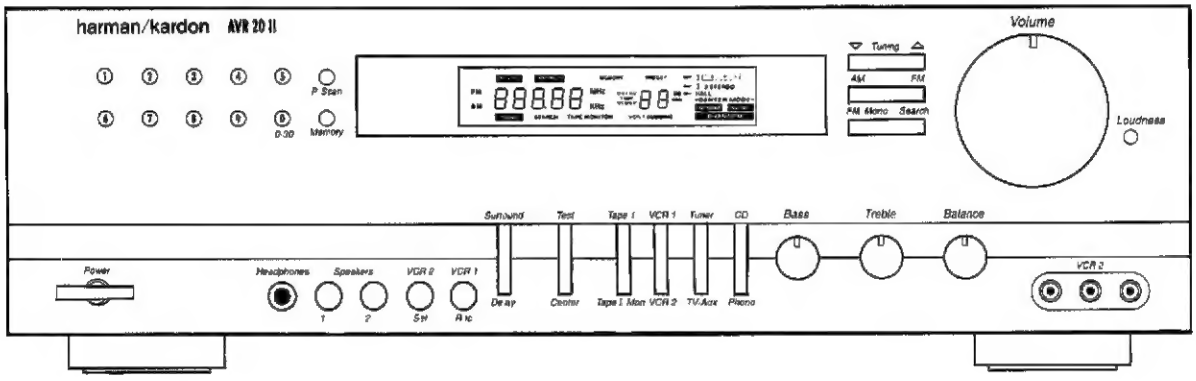
The Harman Kardon
Model AVR20MKII
AUDIO AND VIDEO RECEIVER

Technical Manual



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harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
1112-AVR20MKII G9604 1200 Printed in Korea

SPECIFICATIONS

◎ FRONT AMP SECTION

	Nominal	Limit
RMS Output Power		
(STERE MODE), Input: CD	≥ 65 W	≥ 63 W
THD: 0.09%, 8 ohms		
Both Channel Driven (40 Hz - 10 kHz)		
(SURROUND MODE)	≥ 55 W	≥ 50 W
THD: 0.09%, 8 ohms, 1 kHz		
THD (40 Hz - 10 kHz) at 63 W, 8 ohms, Input: CD		
40 kHz	≤ 0.06%	≤ 0.09%
1 kHz	≤ 0.06%	≤ 0.09%
10 kHz	≤ 0.06%	≤ 0.09%
IM Distortion at 63 W, 8 ohms, Input: CD		
60:7000 Hz = 4:1	≤ 0.2%	≤ 0.3%
Input Sensitivity		
PHONO (MM)	2.5 mV	2.5 ± 0.4 mV
CD, AUX, VCR	150 mV	150 ± 30 mV
S/N Ratio Input Shorted at Volume Max. (WTD IHF-A)		
PHONO	≥ 74 dB	≥ 70 dB
CD, TAPE1,2	≥ 92 dB	≥ 90 dB
TV, VCR1,2	≥ 82 dB	≥ 80 dB
Phono Overload at 1 kHz, THD: 0.5%		
Phono Input→Tape Output	≥ 140 mV	≥ 130 mV
Phono Equalization (RIAA 30 Hz - 15 kHz)		
Tape Monitor Output	RIAA	RIAA ± 1.5 dB
Tone Control		
Bass: 100 Hz	+10 dB	+10 ± 2.0 dB
	-10 dB	-10 ± 2.0 dB
Treble: 10 kHz	+10 dB	+10 ± 2.0 dB
	-10 dB	-10 ± 2.0 dB
Loudness Contour at -40 dB		
100 Hz	+6 dB	+6 ± 2.0 dB
10 kHz	+3 dB	+3 ± 2.0 dB
Frequency Response (CD/AUX)		
20 Hz, 20 kHz	± 0.5 dB	± 1 dB
Channel Crosstalk Input Shorted		
1 kHz	≥ 60 dB	≥ 50 dB
10 kHz	≥ 50 dB	≥ 40 dB

◎ CENTER AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.3%, 8 ohms, 1 kHz)		
Only Center Channel Driven	≥ 55 W	≥ 50 W
S/N Ratio (Input Level: 350 mV)		
Input Shorted, IHF-A WTD	≥ 67 dB	≥ 65 dB
Frequency Response at -3 dB		
Normal	100 Hz - 20 kHz	150 Hz - 15 kHz
Wide	20 Hz - 20 kHz	50 Hz - 15 kHz

◎ REAR AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.7%, 8 ohms, 1 kHz)		
Only Rear Channel Driven	≥ 55 W	≥ 50 W
S/N Ratio (Input Shorted, IHF-A WTD)		
Delay: 20 ms, Input Level: 350 mV		
Dolby	≥ 60 dB	≥ 55 dB
Hall	≥ 60 dB	≥ 55 dB
Frequency Response at -3 dB		
8 ohms, Dolby Pro-Logic	80 Hz - 7 kHz	100 Hz - 6 kHz

◎ VIDEO AMP SECTION

	Nominal	Limit
Input Sensitivity/Impedance		
VCR1, VCR2, VDP	1 V_{p-p}/75 Ω	± 1 dB
Output Level/Impedance		
VCR1, REC out, TV Monitor out		
	1 V_{p-p}/75 Ω	± 1 dB
Frequency Response at -3 dB	DC-10 MHz	5 - 6 MHz
Crosstalk at 1.0 MHz	≥ 45 dB	≥ 40 dB

◎ FM SECTION

	Nominal	Limit
Tuning Cover Range		
USA/Canada: 75 kHz DIV.	87.5 - 107.9 MHz	
Europe: 40 kHz DIV.	87.5 - 108.0 MHz	
Usable Sensitivity (75 ohms Input)		
USA/Canada: 30 dB S/N	≤ 11.2 dbf	≤ 17.2 dbf
Europe: 26 dB S/N		
Image Rejection (at 106 MHz)		
USA/Canada	≥ 45 dB	≥ 35 dB
Europe	≥ 100 dB	≥ 90 dB
IF Rejection (at 90 MHz)	≥ 110 dB	≥ 100 dB
Full Limiting (at -3 dB)	≤ 12.2 dbf	≤ 15.2 dbf
50 dB Quieting Sensitivity (at 98.1 MHz, 100% MOD.)		
IHF Band Pass Filter		
Mono	≤ 17.2 dbf	≤ 23.2 dbf
Stereo: USA/Canada	≤ 40.2 dbf	≤ 43.3 dbf
Europe	≤ 45.3 dbf	≤ 48.3 dbf
Distortion (1 kHz, 100% MOD. at 98.1 MHz)		
IHF Band Pass Filter		
Mono	≤ 0.2%	≤ 0.5%
Stereo	≤ 0.4%	≤ 0.7%
S/N Ratio (1 mV Input, 100% MOD. at 98.1 MHz)		
IHF Band Pass Filter		
Mono	≥ 70 dB	≥ 65 dB
Stereo	≥ 65 dB	≥ 60 dB
Frequency Response (at +1 dB, -3 dB)		
	20 Hz - 15.5 kHz	30 Hz - 15 kHz
AM Rejection Ratio (100 uV - 20 mV Input)		
	≥ 60 dB	≥ 50 dB
Search Level (at 98.1 MHz)	31.2 dbf	31.2 ± 5 dbf
Automatic Stereo Threshold (at 98.1 MHz)		
	31.2 dbf	31.2 ± 5 dbf
Muting Threshold (at 98.1 MHz)	31.2 dbf	31.2 ± 5 dbf
Overload at 98.1 MHz		
(100% MOD. 100 mV RF Input)	≤ 0.2%	≤ 0.5%
Suprious Response (at 98.1 MHz)		
Antenna Input 3 uV	≥ 70 dB	≥ 60 dB
Capture Ratio at 40/60 dbf	≤ 2 dB	≤ 2.5 dB
Alternative Channel Selectivity (at 98.1 MHz ± 400 kHz)		
	≥ 65 dB	≥ 55 dB
Stereo Separation (at 98.1 MHz, 100% MOD., 1 mV Input)		
IHF Band Pass Filter		
100 Hz	≥ 40 dB	≥ 35 dB
1 kHz	≥ 45 dB	≥ 40 dB
10 kHz	≥ 35 dB	≥ 30 dB
Output Voltage (at 100% MOD., 1 kHz Input)		
Mono	500 mV	500 ± 150 mV
Stereo	450 mV	450 ± 150 mV

◎ AM SECTION

	Nominal	Limit
Tuning Cover Range		
USA/Canada: 10 kHz Step	520 - 1710 kHz	
Europe: 9 kHz Step	522 - 11611 kHz	
Usable Sensitivity (400 Hz, 30% MOD., S/N 20 dB)		
	≤ 500 uV/m	≤ 1000 uV/m
Image Rejection (at 1400 kHz)	≥ 35 dB	≥ 30 dB
IF Rejection (at 600 kHz)	≥ 60 dB	≥ 50 dB
AGC Figure of Merit (From 100 mV/m at 1000 kHz)		
	≥ 50 dB	≥ 45 dB
Distortion (400 Hz, 30% MOD. 5 mV/m Input)		
	≤ 0.8%	≤ 1.5%
IF Bandwidth (6 dB Down, 350 uV/m)		
	6 kHz	4 - 11 kHz
Audio Response (5 mV/m Input 1 kHz 0 dB, 1000 kHz)		
at -6 dB	80 Hz - 2.3 kHz	100 Hz - 2 kHz
Selectivity (at 350 uV/m)		
± 10 kHz	≥ 35 dB	≥ 25 dB
S/N Ratio (1000 kHz, With Antenna Input 5 mV/m)		
	≥ 45 dB	≥ 40 dB

RF Overload (400 Hz 80% MOD, 100 mV/m Input)		
	≤ 5%	≤ 10%
Search Level (at 1000 kHz)	800 uV	800 uV ± 6 dB
Output Voltage (400 Hz 30% MOD., 5 mV/m Input)		
	165 mV	165 ± 40 mV
Whistle	≤ 10%	≤ 15%

◎ GENERAL

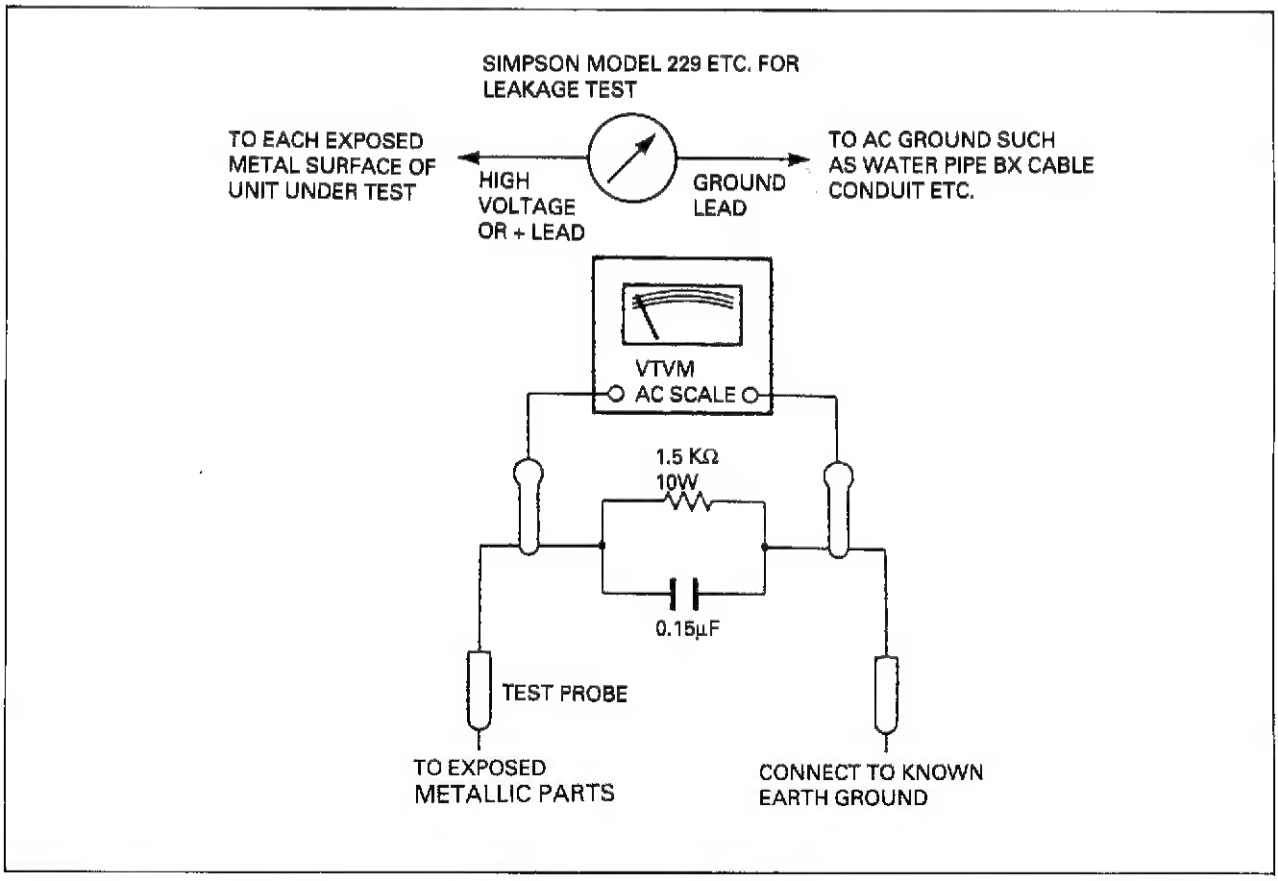
Power Consumption;	
USA/Canada	180 W
Europe	500 W
Power Supplies;	
USA/Canada	AC 120 V, 60 Hz
Europe	AC 230 V, 50 Hz
Dimensions (W × H × D);	
inches	$17^{3/8} \times 6^{1/8} \times 16^{1/2}$
mm	440 × 155 × 420
Weight (lbs/kgs)	26.9/12.2

These specifications are service target specs.
Specifications and components are subject to change without notice.
Overall performance will be maintained or improved.

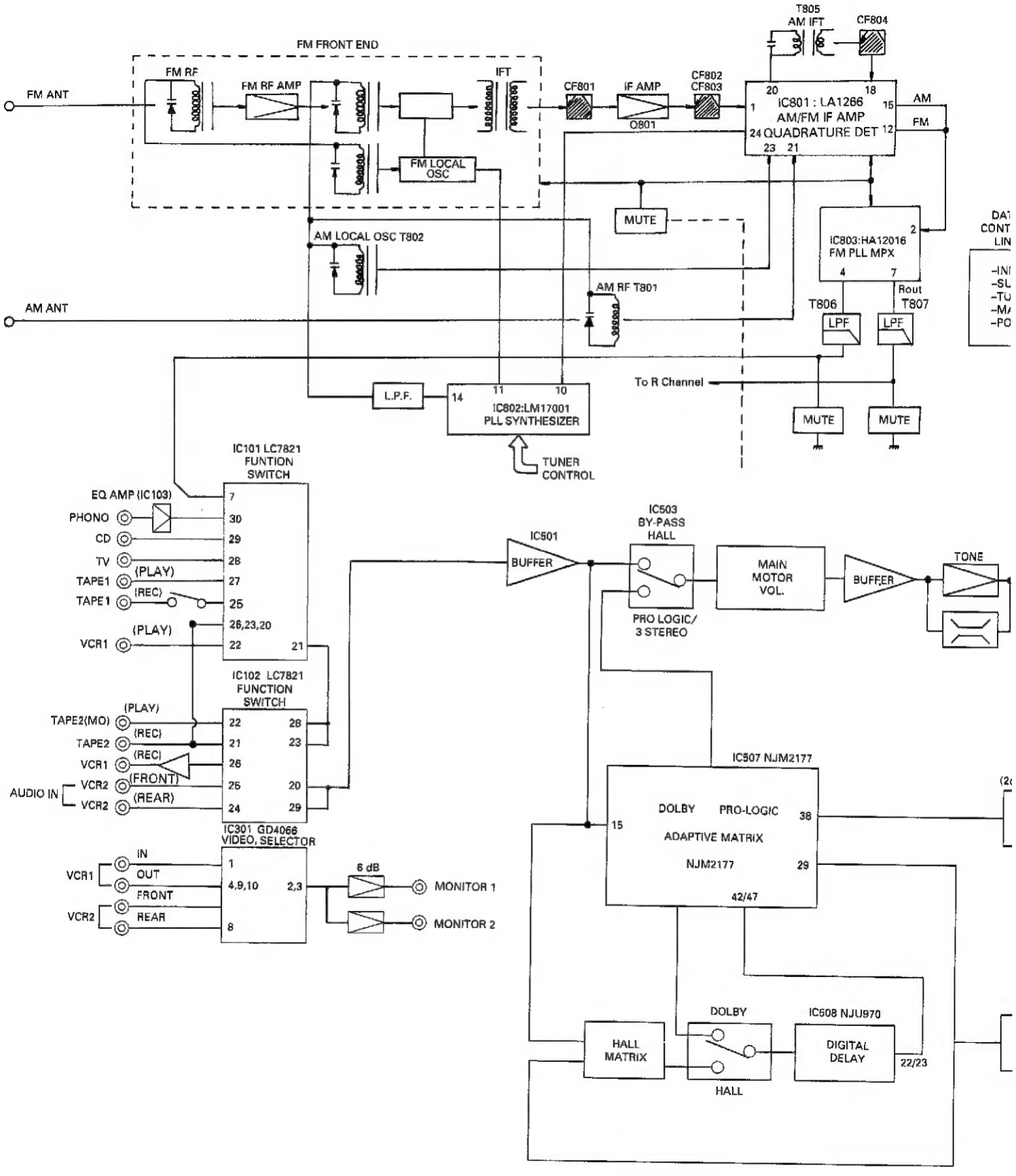
LEAKAGE TEST

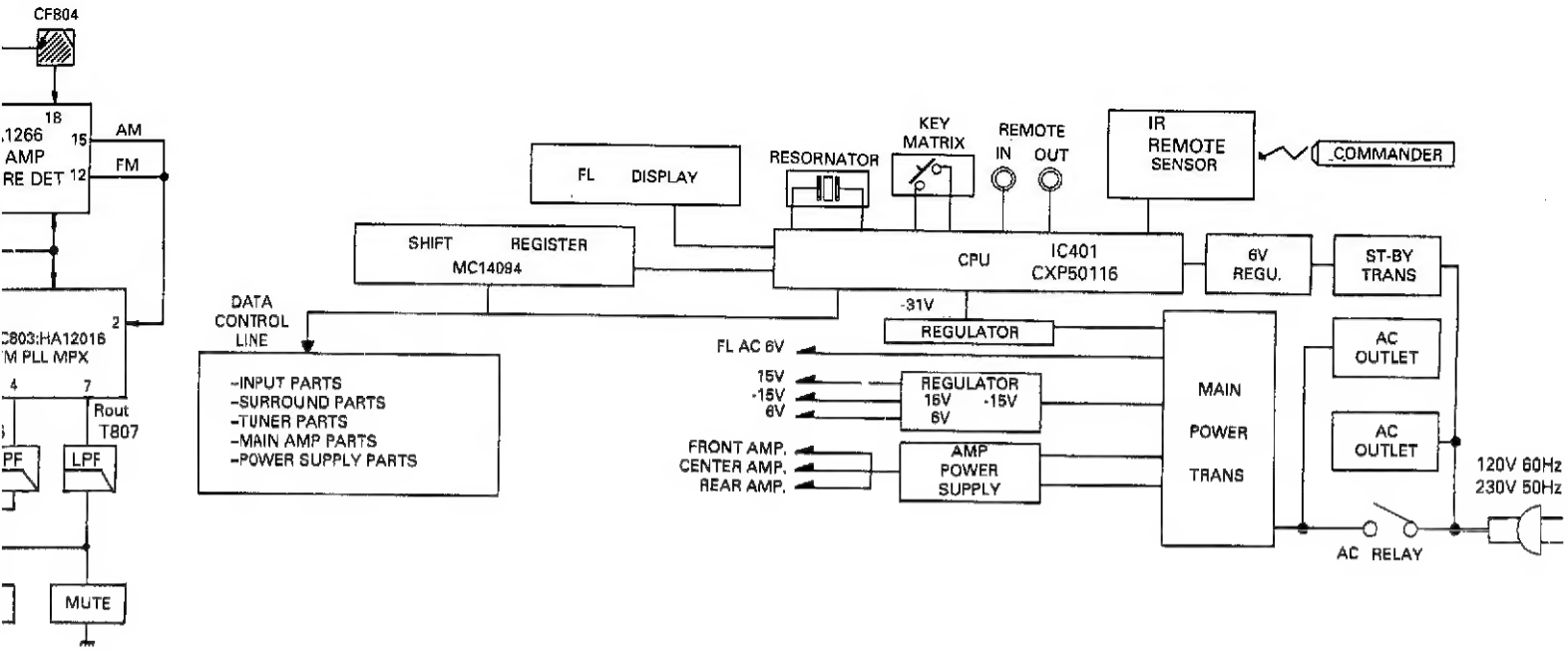
Before returning the unit to the user, perform the following safety checks:

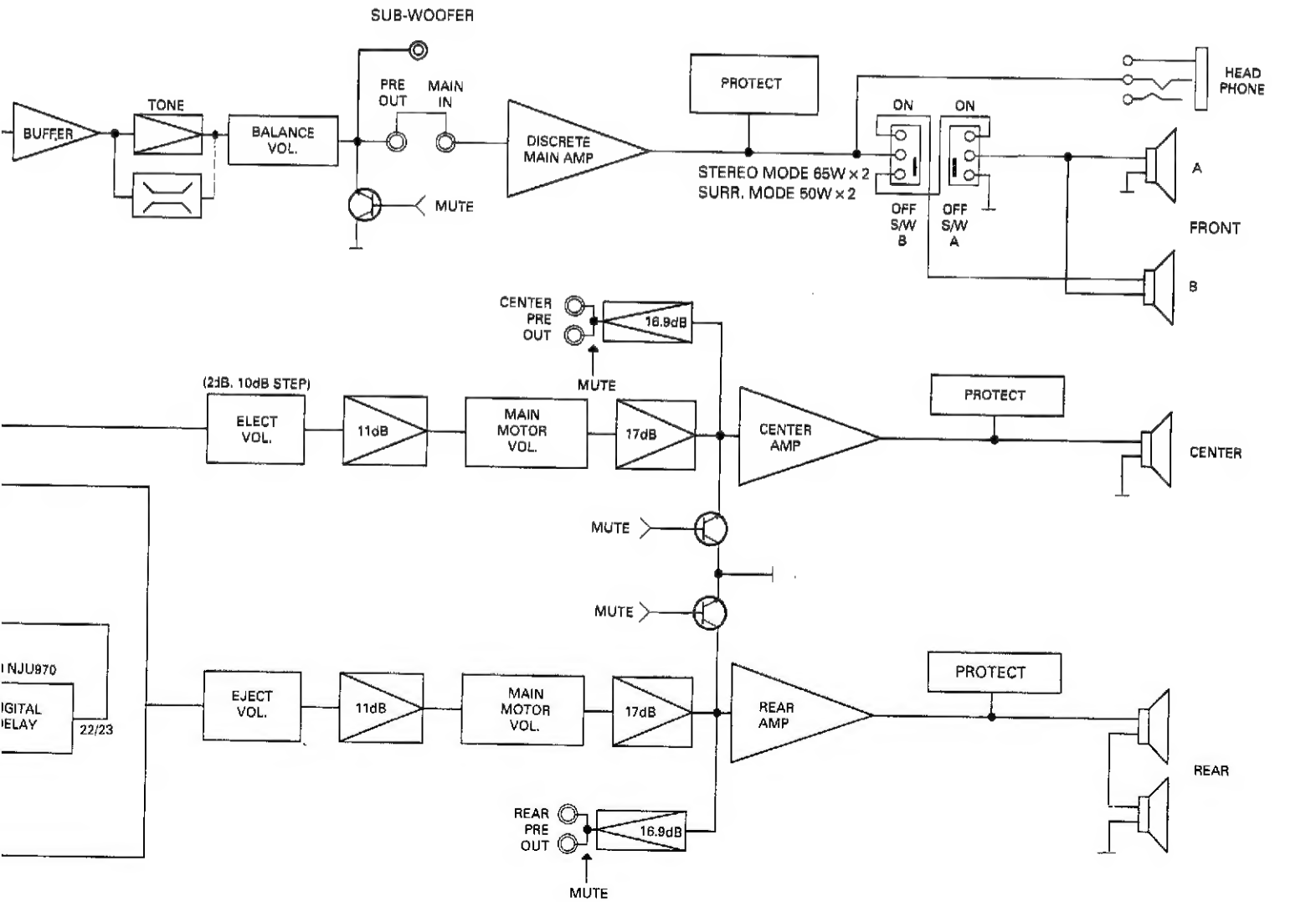
1. Inspect all lead dress to makes certain that leads are not pinched or that hardware is not lodged between the chassis and other metallic parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. Which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 230-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connects a 1500 Ohm, 10-watt resistor paralleled by a 0.15µF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)
   A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



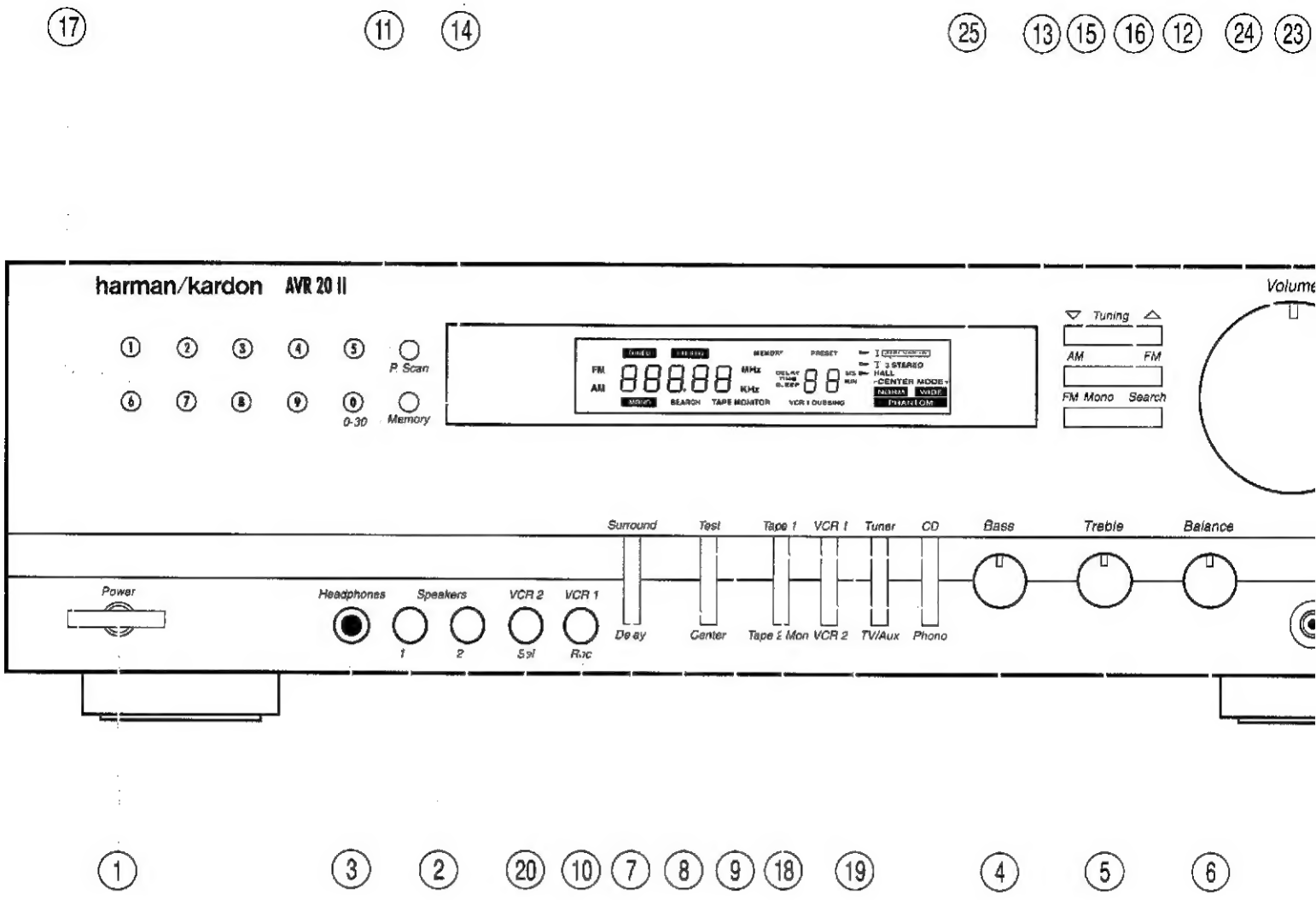
BLOCK DIAGRAM




CF804
AM
FM
MUTE
FL DISPLAY
RESORNATOR
KEY MATRIX
REMOTE IN OUT
IR REMOTE SENSOR
COMMANDER
SHIFT REGISTER MC14094
CPU IC401 CXP50116
6V REGU.
ST-BY TRANS
DATA CONTROL LINE
-INPUT PARTS
-SURROUND PARTS
-TUNER PARTS
-MAIN AMP PARTS
-POWER SUPPLY PARTS
-31V
REGULATOR
FL AC 6V
15V
-15V
6V
REGULATOR 15V -15V 6V
FRONT AMP.
CENTER AMP.
REAR AMP.
AMP POWER SUPPLY
MAIN POWER TRANS
AC OUTLET
AC OUTLET
120V 60Hz
230V 50Hz
AC RELAY


SUB-WOOFER
BUFFER
TONE
BALANCE VOL.
PRE OUT
MAIN IN
MUTE
DISCRETE MAIN AMP
PROTECT
STEREO MODE 65W×2
SURR. MODE 50W×2
ON
ON
OFF S/W B
OFF S/W A
HEAD PHONE
A
FRONT
B
CENTER PRE OUT
16.9dB
MUTE
(2dB. 10dB STEP)
ELECT VOL.
11dB
MAIN MOTOR VOL.
17dB
CENTER AMP
PROTECT
CENTER
MUTE
MUTE
EJECT VOL.
11dB
MAIN MOTOR VOL.
17dB
REAR AMP
PROTECT
REAR
REAR PRE OUT
16.9dB
MUTE

CONTROLS AND FUNCTIONS



1. POWER BUTTON

Press this button to turn the power on. Press again to turn the power off. It can also be used as a system power button, if you connect the other components to the switched outlets.

NOTE: In POWER OFF state, the POWER Indicator will light up orange and power is partially supplied to the infrared remote control receiver and the memory circuitry.

2. 1/2 SPEAKER SWITCHES

These switches allow you to select various combinations of speakers as follows;

- To drive 1 pair of speakers, push only the speaker 1 switch in.
- To drive a second pair of speakers, push only the speaker 2 switch in.
- To drive both pairs of speakers, push both 1 and 2 switches in.
- To use headphones for private listening or monitoring, leave both 1 and 2 switches pushed out.

NOTE: If both speaker switches are pushed in and only one set of speakers is connected to the receiver, no sound will be heard.

3. HEADPHONE JACK

Stereo headphones can be plugged into this jack for private listening. Headphone impedance should be between 8 and 2K ohms. Best results between 200 and 400 ohms.

4. BASS CONTROL

Modifies the low-frequency sound of the left and right channels as much as +/- 10dB. Set this control at a suitable position for your taste and room acoustics.

5. TREBLE CONTROL

Modifies the high-frequency sound of the left and right channels as much as +/- 10dB. Set this control at a suitable position for your taste and room acoustics.

6. BALANCE CONTROL

This control is used for balancing the relative sound volume of the left and right channel speakers. Clockwise rotation reduces the volume from the left speaker, counterclockwise rotation reduces the volume from the right speaker.

7. SURROUND-OFF MODE SELECTOR

Press this switch to select normal stereo mode.

8. DELAY TIM

Adjusts time delay
rear channels, ope
surround mode is
button on page 16

Adjusts the surrou
steps. For Dolby
standard.

→16ms→18 ms→

9. PRO LOGI

Press this button f

10. 3 CHANN

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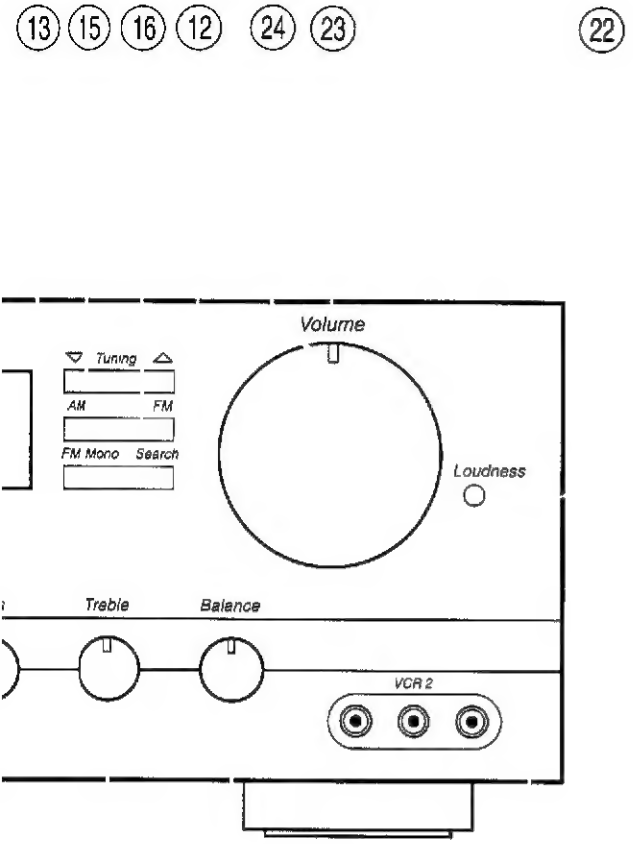

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MODE
normal

8. DELAY TIME

Adjusts time delay between front and rear channels, operates only when the surround mode is on. (see Delay Time button on page 16).

Adjusts the surround delay time in steps. For Dolby Surround 20ms is standard.

→ 16ms → 18 ms → ..... → 28 ms → 30 ms →

9. PRO LOGIC MODE

Press this button for Pro-Logic mode.

10. 3 CHANNEL MODE

The 3 channel mode can be used when rear speakers are not being used to provide a center (dialog) channel.

11. STADIUM/THEATER MODE

Switches for selecting desired surround mode; Stadium or Theater.
See Surround Sound Effects on page 13.

12. CENTER MODE SELECTOR

This button operates only in DOLBY PRO-LOGIC and DOLBY 3 STEREO mode. The mode changes as below, when the button is pressed in succession.

DOLBY PRO-LOGIC MODE

→ NORM → WIDE → PHANTOM →

DOLBY 3 STEREO MODE

→ NORM → WIDE →

The display window shows each mode.

NORM: Select this mode if you use a small center speaker. The bass sound of the center channel is reproduced from the front speakers, because the small speaker cannot produce enough bass.

WIDE: Select this mode if you use a medium-to-large center speaker. The bass sound is reproduced from the center speaker.

PHANTOM: Select this mode if you don't use a center speaker. The center speaker's sound is reproduced from the front speakers.

13. TEST TONE BUTTON

This button operates only in DOLBY PRO-LOGIC and DOLBY 3 STEREO mode. When the button is pressed, 2 seconds of test tone is generated in all channels (Left, Center, Right, and Rear) in succession. The display window shows TEST Left, Center, Right, and Rear in succession (in DOLBY PRO-LOGIC mode) or Left Center or Right (in DOLBY 3 STEREO mode) in succession. Use this button to test speaker connections.

14. SOURCE/DIRECT BUTTON

This feature bypasses the tone control circuitry, resulting in flatter frequency response and wider bandwidth. When it is activated, "DIRECT" illuminates in the display.

15. PRESET SCAN BUTTON

Press this button to scan the preset station frequencies. The receiver stops at each preset location that contains a frequency for about 4 seconds, so you can hear a station. The preset location indicator blinks 4 times. Press this button again to stop scanning.

16. SEARCH SELECTOR

Press this button to select AUTO or MANUAL tuning.

- In AUTO mode, scanning is automatically continued up or down until the next station is picked up by pressing the UP/DOWN tuning buttons. The display window shows 'AUTO'. Use this mode to quickly find strong AM or FM stations.
- In MANUAL mode, the frequency is changed by a step with the UP/DOWN button. If you keep pressing the UP/DOWN tuning buttons, scanning is continued until the button is released.

NOTE: Tuning Intervals:

BAND	USA/CANADA
FM	50 KHz
AM	10 KHz

17. FM MODE BUTTON

Press this button to select stereo or mono mode.

- **STEREO:** Provides stereophonic reception of an FM stereo broadcast. The display window shows 'FMST'.
- **MONO:** The left and right channel signals detected from an FM stereo broadcast are mixed and reproduced through both channels. If you want to find a weak FM station, select this mode.

18. STATION MEMORY BUTTON

Use this button to store an AM or FM frequency. Press this button and select one of 30 preset locations to store the frequency with the STATION PRESET buttons while the memory indicator, 'MEMORY' blinks.
NOTE: When you store a frequency in a memory location that already contains a frequency, you replace the previous frequency. If your receiver is disconnected from AC power for more than about 10 days, it loses all stored frequencies.

19. UP/DOWN TUNING BUTTONS

Press the DOWN button (v) to tune in lower frequency stations, the UP button (^) to tune in higher frequency stations. If you press the DOWN button when the display is at the bottom of the frequency range, the display returns to the top of the range. If you press the UP button when the display is at the top of the frequency range, the display returns to the bottom of the range. When the receiver finds a strong frequency, the display window shows 'TUNED'.

20. FM/AM BAND SELECTOR

Press these buttons to select the FM or AM radio band. When you select the AM or FM radio band, the receiver displays the last frequency selected on that band.

21. STATION PRESET BUTTONS

Select one of 30 preset locations to recall the station stored in memory. The input function is automatically changed to TUNER when the button is pressed. When you select numbers from 10 through 29, you must select the second digit within about 2 seconds. To select preset 30, simply press "0".

22. TAPE 2 MONITOR BUTTON

Set TAPE 2 MONITOR to the "off" position when you want to hear the other input functions. Press this button to monitor the cassette deck connected to the TAPE 2 MON input jacks.

23. INPUT FUNCTION SELECTOR

Press the button to select the desired input function: VCR 1, VCR 2, VDP, TAPE 1, TV/Aux, Tuner, CD or Phono.

To dub from VCR 2 to VCR 1, press the VCR 2 button and then press the VCR 1 REC button.

For the input function of VCR 1 press the VCR 2 button and VCR1 DUBBING button. Set the recording VCR (VCR 1) to recording mode. Set the playback VCR (VCR 2) to play a tape.

Dubbing will start.

- To hear another input source during video tape dubbing: Press the input function you want to hear, and play the input source.

NOTE: If you press the TEST TONE button during VCR 1 DUBBING, the audio signal is not recorded.

24. VCR 2 SELECTOR

Push in this button to select the VCR 2 jacks on the front, rather than the VCR 2 jacks on the rear.

25. VCR 2/CAMCORDER INPUT JACKS

VIDEO IN:
Connect to the VIDEO OUTPUT jack of a VCR (yellow jack).

AUDIO IN:
Connect to the AUDIO OUTPUT jacks of a VCR (red and white jacks).

26. LOUDNESS BUTTON

Press this button to compensate for the response of the human ear at low listening levels (known as the Fletcher-Munson hearing curve). The high and low frequencies are automatically boosted when this button is pushed in. In the OFF position, the frequency response is flat at all volume levels. This button does not work at high volume levels.

27. VOLUME CONTROL

Turn the VOLUME clockwise to increase the volume and counterclockwise to decrease it. The volume of the front, center, and rear channels is changed at the same time.

28. VOLUME LEVEL INDICATOR

This indicator moves in accordance with the volume level. The indicator blinks when the mute button on the remote commander is pressed.

29. DISPLAY WINDOW

This window shows the state of operation for easier control of the receiver. It also contains the IR Remote Sensor.

DISASSEMBLY PROCEDURES

REFER TO PAGE 21 and 33.

[1] COVER TOP REMVOAL

Remove 8 screws (A) and then remove the Cover Top (51).

[2] COVER BOTTOM REMOVAL

Remove 10 screws (B) and then remove the Cover Bottom (29).

[3] FRONT PANEL ASSEMBLY REMOVAL

1. Remove the Cover Top (51), referring to the previous step [1].
2. Remove the flat cable from wafer (CP401) on the Volume P.C.Board (PCB9).
3. Disconnet (CP102) from the Volume P.C.Board (PCB6).
4. Disconnect (CNT602) from the Surround P.C.Board (PCB11).
5. Disconnet (CP701 and CP702) from the Input P.C.Board (PCB9).
6. Disconnect (CP703) from the Video P.C.Board (PCB2).
7. Remove 8 screws (C) and then remove the Front Panel Assembly (AA).

[4] VOLUME P.C.Board (PCB9) REMOVAL

1. Remove the Cover Top (51), refering to the previous step [1].
2. Pull out the Volume Knob (1) with Volume LED P.C.Board (PCB8).
3. Disconnect (CP102 and CP503) from the Volume P.C.Board (PCB6).
4. Remove the Hex Nut from the Volume-motor to remove the Volume P.C.Board (PCB6).
5. Remove 3 screws (M) and then remove the Volume P.C.Board (PCB6).

5 SPEAKER SEL. P.C.Board (PCB7) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Remove the Front Panel Assembly (AA), refering to the Previous step 3.
3. Remove 4 screws (D) and then remove the Sperker Sel. P.C.Board (PCB7).

6 TONE P.C.Board (PCB5) REMOVAL

1. Remove the Cover Top(51), refering to the Previous step 1.
2. Remove the Front Panel Assembly (AA), refering to the previous step 3.
3. Pull the Bass, Treble, Balance Knobs (3).
4. Remove the Hex Nuts from the variable resistors (17, 18).
5. Remove 3 screws (E) and then Tone P.C.Board (PCB5).

7 FRONT P.C.Board (PCB4) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Remove the Front Panel Assembly (AA), refering to the previous step 3.
3. Remove 9 screws (F) and then remove the Front P.C.Board (PCB4).

8 TUNER P.C.Board (PCB10) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Remove 3 screws (G) and then remove the Tuner P.C.Board (PCB10).

9 SURROUND P.C.Board (PCB11) REMOVAL

1. Remove the Cover Top (51), referring to the previous step 1.
2. Disconnect (CNT602) from the Surround P.C.Board (PCB11).
3. Remove 2 screws (H) and then remove the Surround P.C.Board (PCB11).

10 VIDEO P.C.Board (PCB2) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Remove the Surround P.C.Board (PCB11), refering to the previous step 9.
3. Disconnect (PC703, CP101 and CN301) from the Video P.C.Board (PCB2).
4. Disconnect (CP902) from the Sub-Woofer P.C.Board (PCB3).
5. Disconnect (CP301) from the Main P.C.Board (PCB1).
6. Remove 5 screws (I) and then remove the Video P.C.Board (PCB2).

11 SURROUND P.C.Board (PCB3) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Disconnect (CP902 and CP110) from the Sub-Woofer P.C.Board (PCB3).
3. Remove 4 Screws (K) and then remove the Sub-Woofer P.C.Board (PCB3).

12 CHASSIS BACK REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Do Steps 2, 8, 9, 10 and 11.
3. Remove 15 screws (J) and then remove the Chassis Back (34).

13 MAIN P.C.Board (PCB1) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Do Steps 2, 4, 8, 9 and 12.
3. Unsolder all leads of (Q116, Q112, Q115, Q123, Q126 and Q127) from copper track on the Input P.C.Board (PCB9).
4. Disconnect (CP103, CP109 and CP206) from the Main P.C.Board (PCB1).
5. Disconnect (CP110, CP701, CP702, CP204 and CP207) from the Input P.C.Board (PCB9).
6. Remove the flat cable from wafer (CP401) on the Input P.C.Board (PCB9).
7. Remove 5 screws (L) and then remove the Input P.C.Board (PCB9).

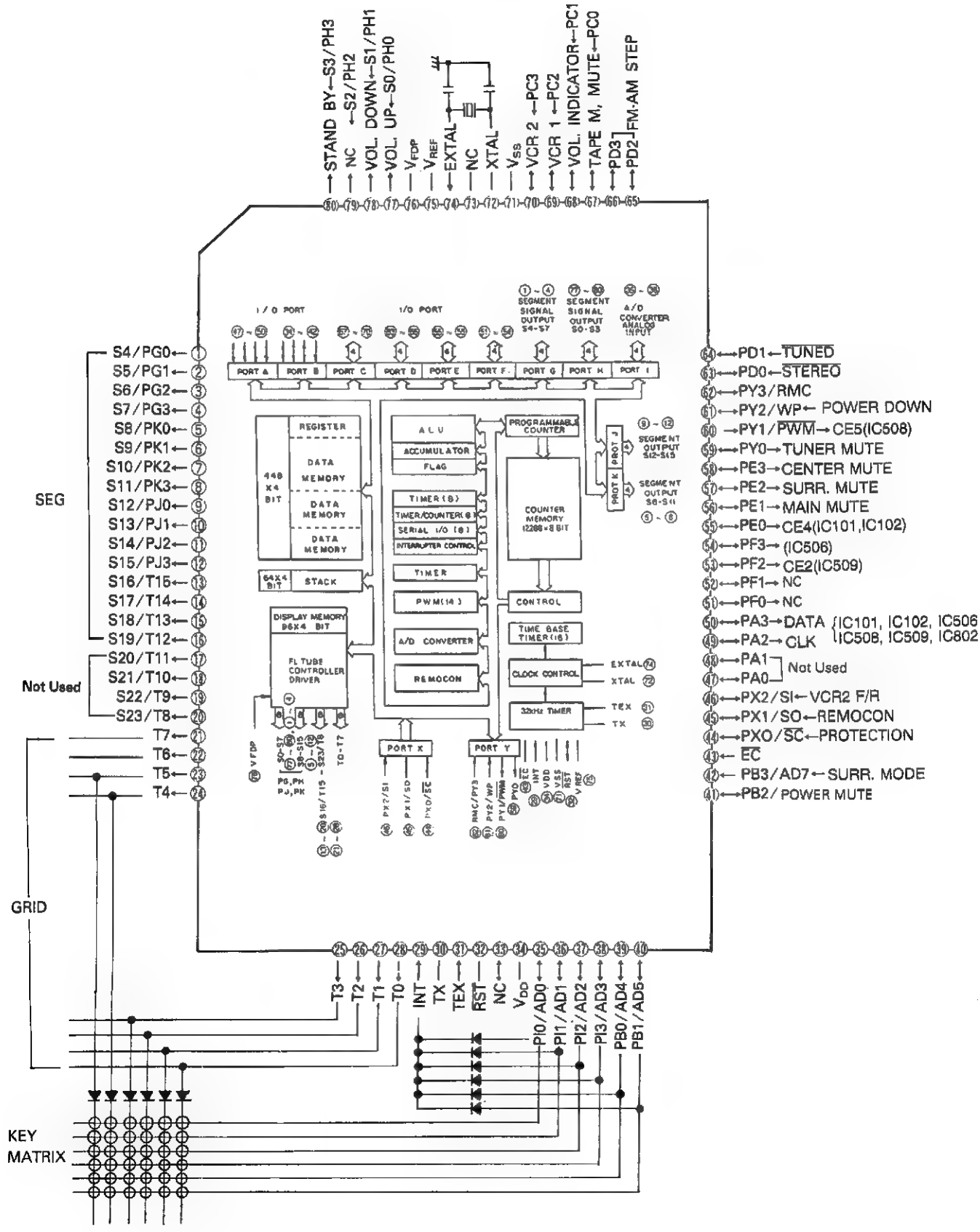
14 MAIN P.C.Board (PCB1) REMOVAL

1. Remove the Cover Top (51), refering to the previous step 1.
2. Do Steps 2, 8, 9, 10, 11 and 12.
3. Unsolder all leads of (Q216L/R, Q217L/R and Q213L/R) from copper track on the Main P.C.Board (PCB1).
4. Disconnect (CP201, CP202, CP203, CP204, CP206, CP207H and CP207T) from the Main P.C.Board (PCB1).
5. Remove 6 screws (N) and then remove the Main P.C.Board (PCB1).

CIRCUIT DESCRIPTION

CPU (4 bit CMOS MICROPROCESSOR : CXP50116-530Q)

1. Pin Description & Block Diagram



2. Input and Output Terminal Functions

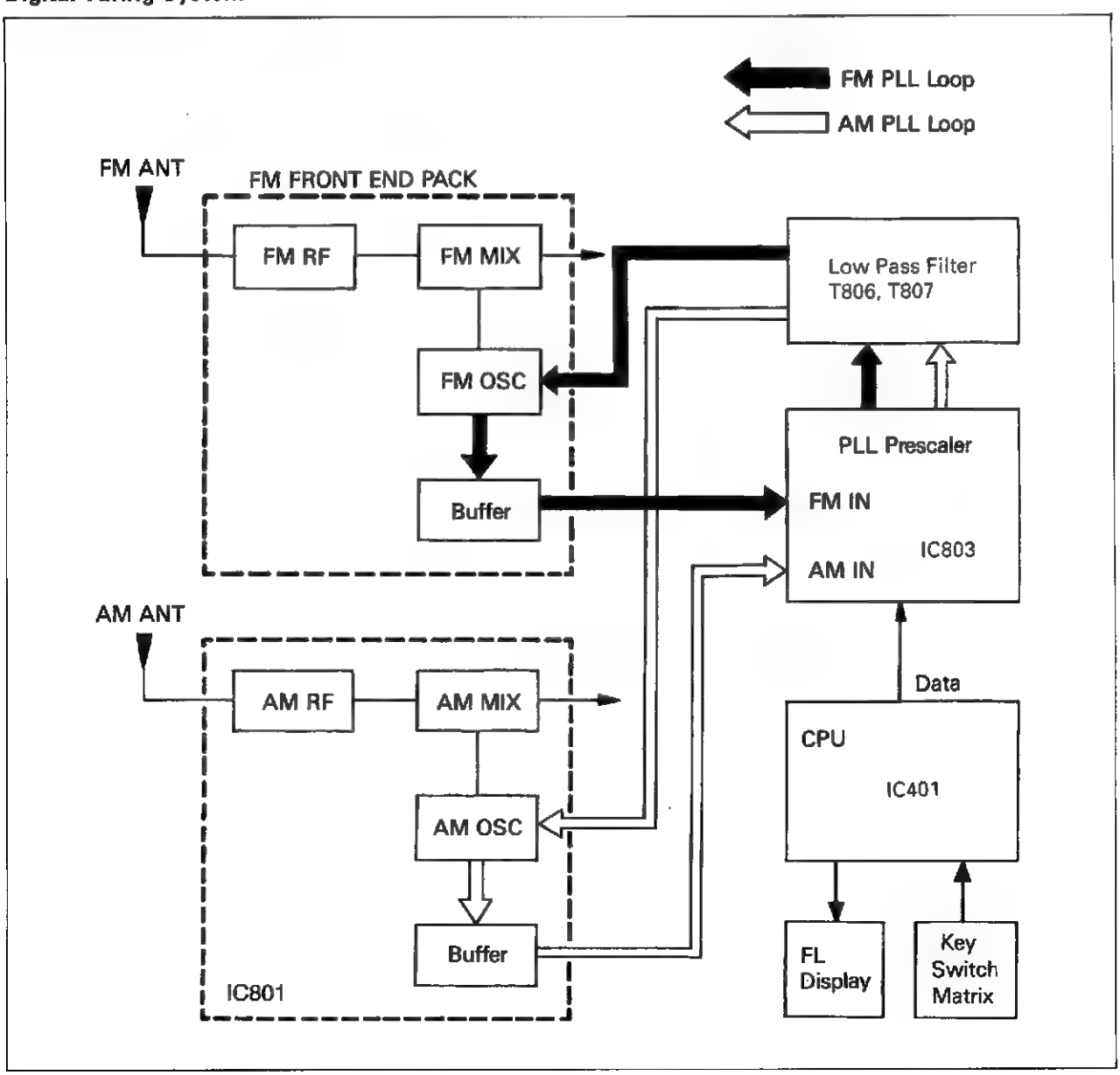
Code	Function
S4/PG0-S19/T12	These are segment signal output pins of FL controller/driver.
S20/T1-S23/T8	Not used
T7-T 0	These are timing signal output pins of FL controller/driver and key scan pins.
INT	This is external interrupt dedicated pin.
TX, TEX	Not used
RST	This is the system reset of the device.
NC	No connection
V_{DD}	This is the power supply pin.
PI0/AD0-PB1/AD5	These are the key input pins.
PB2/AD6	This is the power mute output pin.
PB3/AD7	This is the channel mode control pin of surround mode.
EC	Not used.
PX0	This is the protection input pin.
PX1	This is the remote control input pin.
PX2	This is the VCR2 front and rar input control pin.
PA0	Not used.
PA1	Not used.
PA2-PA3	These are used to control the PLL IC, analog switching IC. Shift register IC, volume IC, delay IC. (CLK, DATA)
PF0	This is the FM mode colntrol pin.
PF1	This is used to control the PLL IC.
PF2	This is used to control the shift register IC.
PF3	This is used to control the volume IC.
PE0	This is used to control at analog switching IC.
PE1	This is the main mute output pin.
PE2	This is the surround mute output pin.
PE3	This is the center mute output pin.
PY0	This is the tuner mute output in.
PY1	This is used to control the delay IC.
PY2	This is the power down pin.
PY3	Not used.
PD0	This is the tuner stereo input pin.
PD1	This is the tuner tuned input pin.
PD2-PD3	These are used to control FM and AM step.
PC0	This is used to eliminate the noise of the PLL IC in the Tape 2 Monitor mode.
PC1	This is used to control volume indicator.
PC2	This is used to control VCR1
PC3	This is used to control VCR2
V_{SS}	This pin provides the ground potential.
XTAL, EXTAL	These pin serve for connecting a clock oscillator crystal.
NC	No connection.
V_{REF}	Not used.
V_{FDP}	This is the power supply pin of the FL controller.
PH0-PH1	These are used to control the motor volume.
PH2	Not used.
PH3	This is used to control stand-by mode.

3. Key Matrix

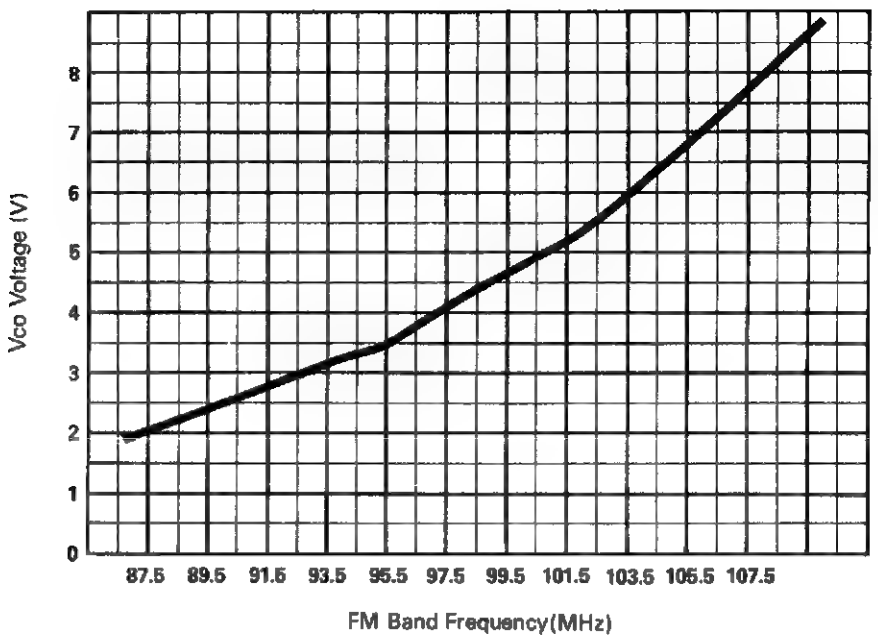
Pin No.	35	36	37	38	39	40
22	4	9	CD	0	5	PHONO
23	VCR1	VCR2	TV	T2M	T1	TUNER
24		VCR1 REC	SURR MODE	MEMORY		SCAN
25	▼	▲	FM MODE	AUTO MANUAL	FM	AM
26	2	6	3	2	7	8
27				POWER		
28	DELAY TIME		TEST TONE		CENTER MODE	

4. Digital Tuning System Description

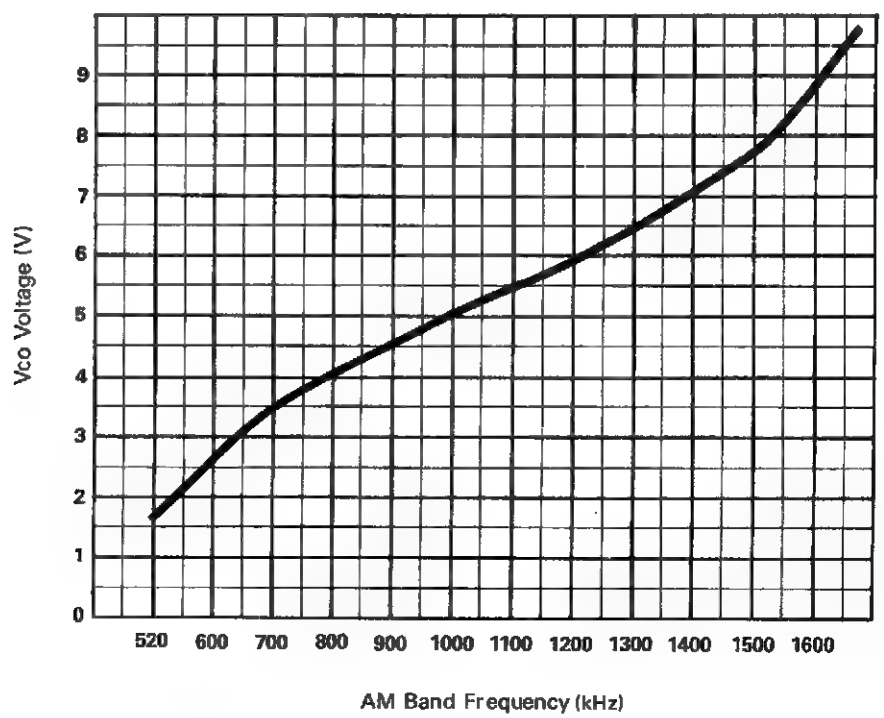
Digital Turing System



• **Vco vs. FM Band Frequency Curve**



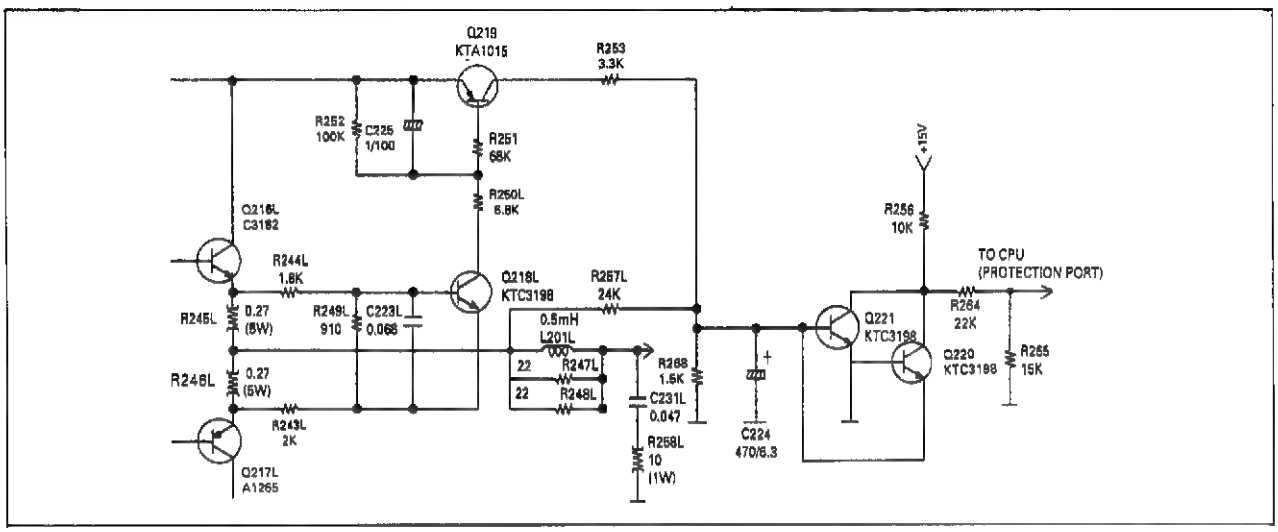
• **Vco vs. AM Band Frequency Curve**



5. Protection Circuits

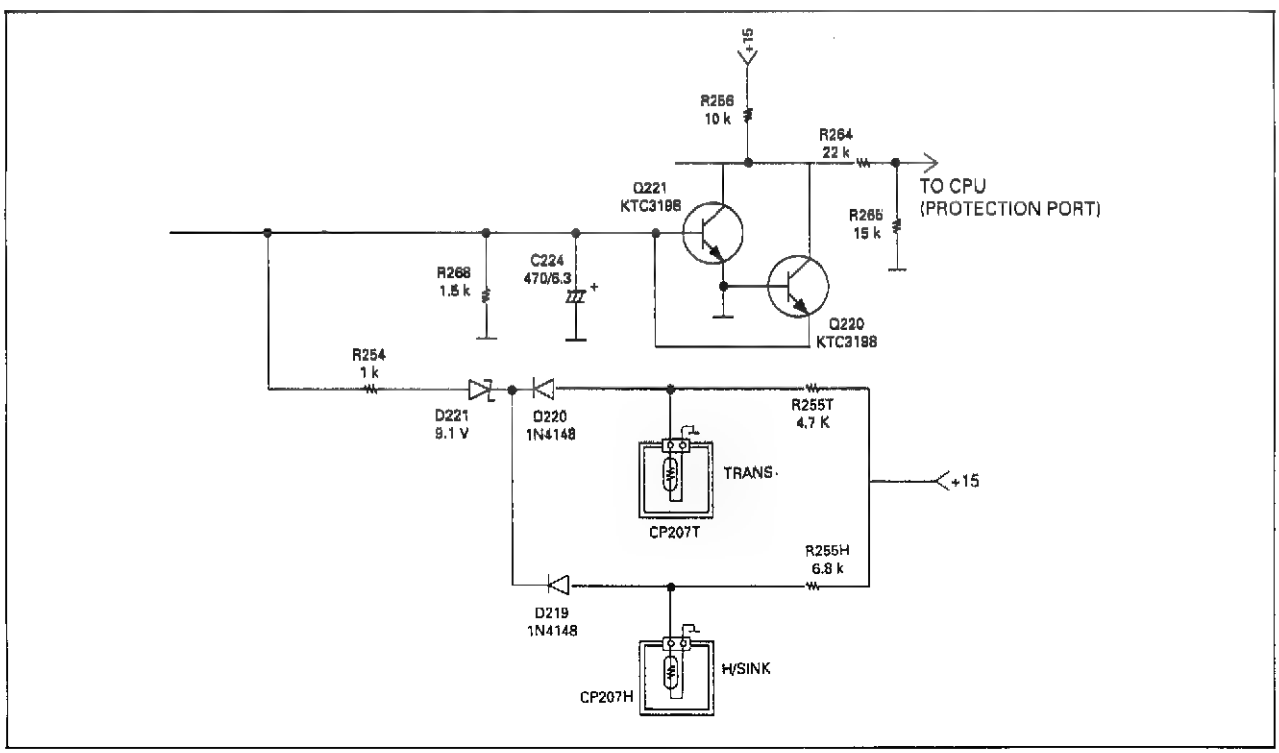
Speaker Protection Circuit

The CPU protects both this unit and the speakers when an abnormally high current flows in Q216 L/R and Q217 L/R due to excessive input drive, too low of ≡ load impedance, or short of the speaker terminals. If current increase is excessive, the voltage across R245 L/R or R246 L/R turns on Q218 L/R, then Q219 turns on Q221.
It makes the protection port of the CPU to low state. Then the power is turned off.



Thermal Protection Circuit

This receiver has a overload thermal protection circuits to guard against abnormal operation.
When the temperature of TRANS POSISTOR installed with the main transformer or H/SINK POSISTOR rises abnormally, the resistance of the posistor becomes larger and Q221 is turned on.
It makes the protection port of the CPU to low state. Then the power is turned off.



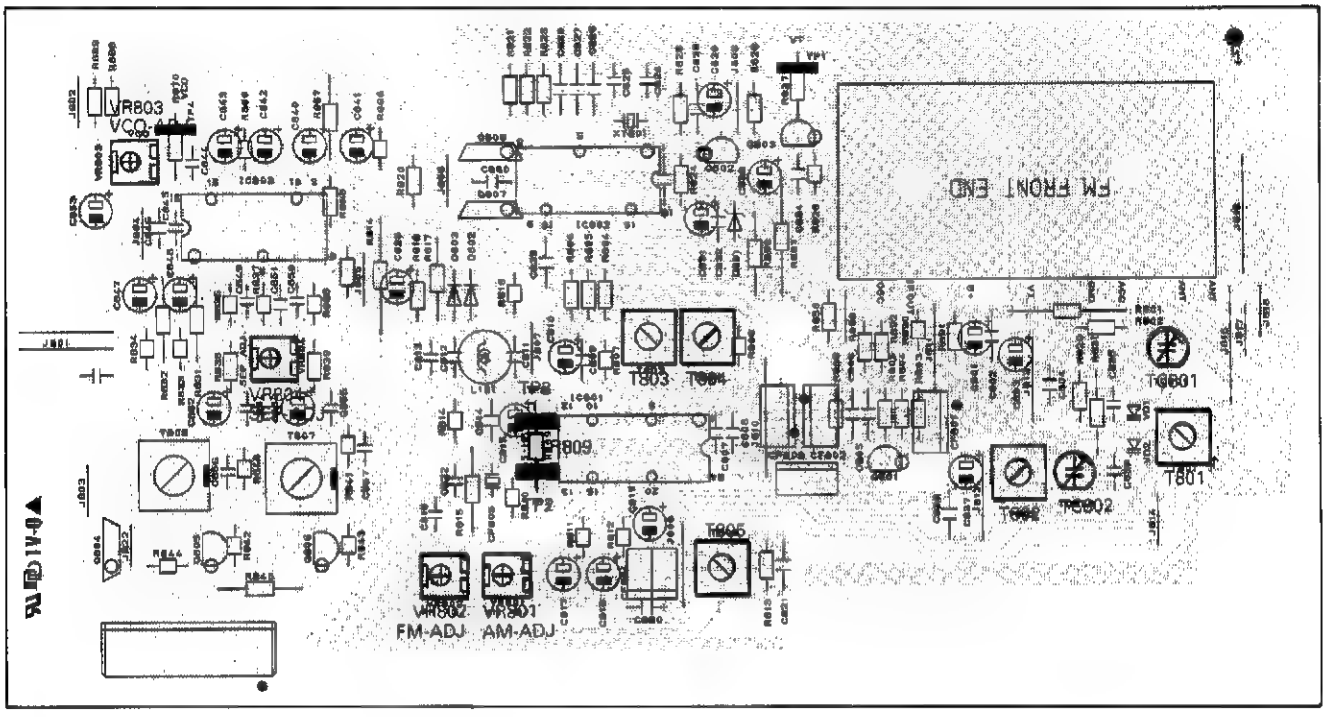
ALIGNMENT PROCEDURES

1. Equipment Required

- AM Standard Signal Generator (AM SSG)
- Oscilloscope
- AC Voltmeter
- FM Standard Signal Generator (FM SSG)
- Stereo Modulator
- Audio Generator
- Distortion Meter
- DC Voltmeter
- Frequency Counter

Note : Disconnect external FM antenna prior to alignment.

2. Alignment and Test Points (PCB10)



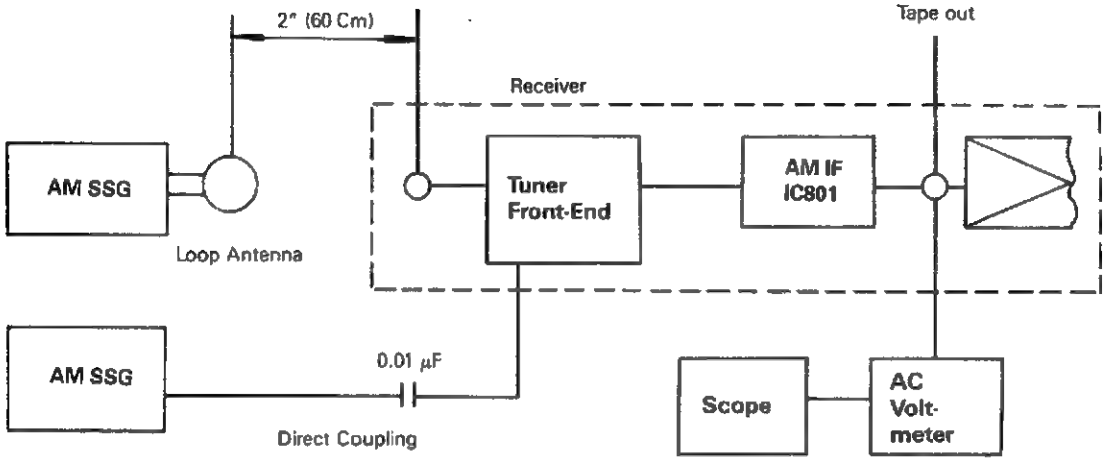
3. AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation: 30%.
3. Switch: Press to AM.

Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	999 kHz (400 Hz, Mod.)	522 kHz	DC Voltmeter TP1	T802	1.2 V reading
		1611 kHz	DC Voltmeter TP1	TC802	8.5 V reading
2	594 kHz (400 Hz, Mod.)	594 kHz	AC voltmeter to TAPE OUT jack.	T801 (ANT Coil)	Maximum reading
3	1404 kHz (400 Hz, Mod.)	1404 kHz	AC voltmeter to TAPE OUT jack.	TC801 (ANT Trimmer)	Maximum reading

4	450 kHz (400 Hz, Mod.)	999 kHz	AC voltmeter to TAPE OUT jack.	T805 (IFT)	Maximum reading
5	999 kHz (400 Hz, Mod.)	999 kHz	Same as Step 1.	VR801	FL display 'TUNED' Indication on receiver with AM SSG Output level of 800 μV/m

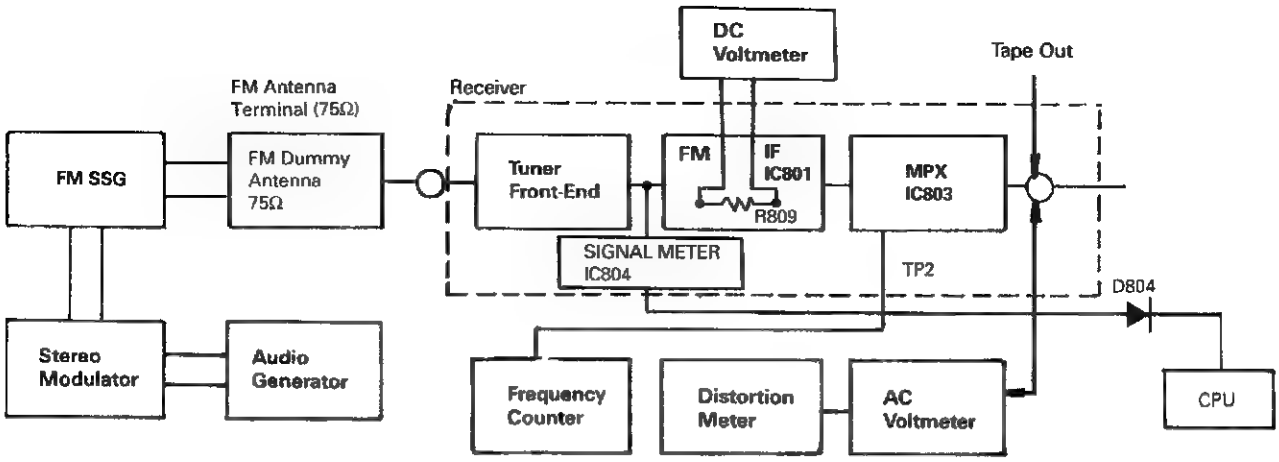


AM Alignment Connection

4. FM IF Alignment

Preparation
1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch Press to FM.
3. Signal generator deviation : 40 kHz.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.0 MHz (1 kHz, Mod.)	98.0 MHz	DC Volt meter to R809 (PCB10)	T803	Zero reading on DC volt meter.
2	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Distortion meter to TAPE OUT jack	T804	Minimum distortion
3	98.0 MHz (1 kHz, Mod.)	98.0 MHz	Same as Step 1	VR802	FL display 'TUNED' Indication on receiver with FM SSG output level of 10 μV/m



FM RF/IF and MPX Alignment Connection

5. MPX Alignment, SM Alignment

Preparation

1. Switch : Press to FM.
2. Tuner for 98 MHz on band.
3. Signal Generator output level : 1000 μV.
4. Deviation : 40 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (75 Ω).

Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP2 (HOT) of PCB and ground	VR803	76 kHz
2	8% Mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	–	Adjust for about 450mV of audio output
3	8% Mod.	Composite to channel 1 kHz L	AC voltmeter to TAPE OUT jack of R channel	VR804	AC voltmeter reading should be at least 40 dB below.
4	8% Mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of L channel	VR804	Same as Step 3.
5	8% Mod.	Composite to channel 1 kHz L or R	AC voltmeter to TAPE OUT jack Lor R channel	VR805	FL display 'SIG 60 dB' indication on receiver with FM SSG output lenel of 1000 μV/m
If you could not obtain –40dB readings in Steps 3 and 4 (compared with Step 2), readjust VR804 until you obtain –40dB readings for both Steps 3 and 4. Nominal is –45 dB.					

TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative (FL indicator does not light)	A) Faulty AC power cord. Replace. B) Defective the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short on the primary or secondary of the transformer circuitry. Repair the trace. C) Damaged rectifier (D208 to D211) or damaged transistor (Q216 to Q217). Replace the defective component(s). D) Short circuit in the amplifier circuit. Replace the shorted component(s) in the amplifier circuit.
Power indicator lights but no sound from both channels	A) Speaker switch 1 or 2 defective. Replace the defective switch (es) B) Defect in transistor Q216 L/R, Q217 L/R on the Main Amp Board. Replace the defective component(s).
Speaker A inoperative	A) Speaker switch A defective. Replace
Speaker B inoperative	A) Speaker switch B defective. Replace.
One channel does not work when Volume is at maximum with a test signal applied to the center terminal of Volume control VR5 of the dead channel	A) Defect in transistor Q216 L/R, Q217 L/R on the Main Amp Board Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the circuit trace. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative	A) Headphone plug does not mate with jack. Replace the jack. B) Defective resistor R901, R902. Replace.
PHONO input inoperative	A) Poor contact in phono input jack. Repair or replace the jack. B) Defective phono switch or IC103. Replace.
LOUDNESS has no effect	A) Defective loudness switch. Replace. B) Defective resistor R601, R602, C601, C602. Replace the defective components(s).
FM inoperative	A) Defective front-end. (FE407-G60) Replace. B) Defective FM switch. Replace the switch

Symptom	Cause and Remedy
FM inoperative	C) Defective transistor Q801, Q805, Q806, IC801, IC803 Replace the defective transistor(s) or IC(s). D) Defective coil T803 or T804 Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filter CF801, CF802, CF803 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR803 and VR804. (Refer to MPX Alignment.) B) IC803 defective. Replace. C) Variable resistor VR803 or VR804 defective. Replace the variable resistor(s).
STEREO indicator does not light	A) Defective indicator in FL. Replace. B) Improper adjustment of VR803 of tuner board. Make readjustment. C) Defective IC803 Replace the defective component.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough : Front end Section defective. Faulty IC801, Coil T803, Defective C838 of tuner Board. If sound of one channel is not loud enough: Defective T806, T807
FM Mono has no effect	A) Defective FM MODE switch. Replace.
AM inoperative	A) Damaged IC801 of tuner board. Replace. B) Defective T801, T802, T805 or CF804 of tuner board. Replace the defective component(s). C) Resistor R829, R817 defective. Replace the defective component(s). D) Capacitor C836, C818, C813 defective. Replace the defective capacitor(s). E) Defective AM switch Replace. F) Defective varicap diode VD1, VD2 Replace varicap diods(s). G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
Bass control has no effect	A) Variable resistor BASS defective. Replace. B) Defective R709L/R, R710L/R, C702L/R, C708L/R Replace the defective component(s).

Symptom	Cause and Remedy
Treble control has no effect	A) Variable resistor TREBLE defective. B) Defective R711 L/R, R712 L/R, C709 L/R, C710L/R Replace the defective components(s).
Auto tune inoperative (UP/DOWN)	A) Poor contact in Up/Down key. Repair or replace. B) Defective IC401 Replace. C) Defective FL401. Replace. D) Defective tuner circuit component. Replace. E) In case of FM only, improper adjustment of FM front-end. Readjust.
Manual tune inoperative (UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC401. Replace.
Memory setting (keys 1-10) inoperative	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC401. Replace the defective component.
FL inoperative	A) FL defective. Replace. B) Defective IC401. Replace C) Defective X401. Replace.
Noise Volume control	A) Defective IC603. Replace. B) Defective capacitor C615 or C616. Replace the defective capacitor(s).
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC401(CPU Board) or IC01. Replace.

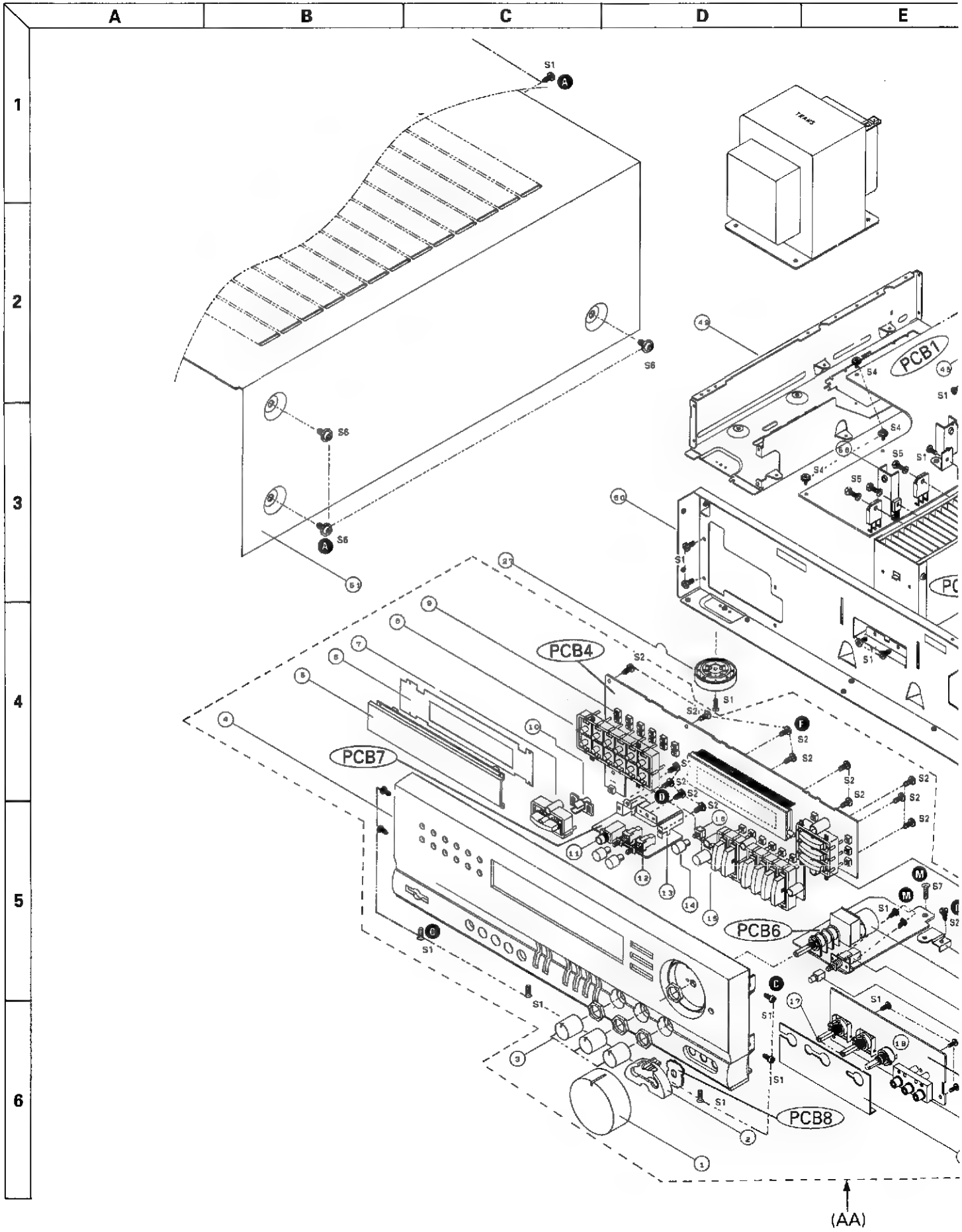
GENERAL UNIT PARTS LIST

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
	CABINET AND CHASSIS			
1	Knob, Volume	048543059611	1	
2	Indicator, Volume	8555048610	1	
3	Knob, Rotary	048545124311	3	
4	Panel, Front	048501033812	1	
5	Window, Display	8553019710	1	
6	Filter	048555048511	1	
7	Button, Power	048545124011	1	
8	Button, Preset	048543059611	1	
9	Switch, Tact	4858003710	32	
10	Indicator, Power	8555048710	1	
11	Jack, Phone	4438005020	1	
12	Switch, Push	4626043610	2	
13	Shield, Fence, knob	6165147910	1	
14	Button, Speaker	048545124111	2	
15	Button, Function	048543059911	1	
16(SW433)	Switch, Push	4628054410	1	
17	Volume, Bass/Treble	3208049510	2	
18	Volume, Balance	3208052010	1	
19	Shield Fence	6165148410	1	
20	Jack, RCA, 3P, VCR	4438109710	1	
21	Button, Loud	048545124211	1	
22	Switch, Loud	4628059610	1	
23	Volume, Motor	3228019410	1	
24	Bracket, Volume	6505138410	1	
25	Button, Tuning	048543059711	2	
26	Foot	6033102510	2	USA/CANADA
(27)	Foot, Hot-stamping	046033102511	2	USA/CANADA
27	Foot, Hot-stamping	046033102511	4	EUROPE
28	Frame, Cover	6123205210	1	
29	Cover, Bottom	6122418120	1	
30	Bracket, PCB	6505111710	2	
31	Frame, Right	6122636410	1	
32	Jack, RCA, 4P	4438108110	1	
33	Terminal, Antenna	4408108210	1	
34	Chassis, Back	046102044251	1	EUROPE
(34)	Chassis, Back	046102042211	1	USA/CANADA
35	Jack, RCA, 6P	4438103210	1	
36	Frame, Center	6123205110	1	
37	Bracket, Jack	6505138510	1	
38	Terminal, Speaker, 4P	4408106410	1	
39	Jack, Multi	4438006510	2	
40	Jack, RCA, 2P	4438109310	2	
41	Jack, RCA, 1P	4438113810	1	
42	Bracket, Heatsink	6505135010	1	
43	Heatsink, Power	7502008510	1	
44	Heatsink, Regulator TR.	7505206220	1	
45	Heatsink, Regulator TR.	7505206120	2	
46	Bracket, PCB	6505134910	2	
47	Terminal, Speaker, 8P	4408105810	1	
49	Frame, Left	6121608930	1	
50	Chassis, Front	6122214510	1	
51	Cover, Top	048122022421	1	
52	Stopper, AC Cord	6518002320	1	EUROPE
(52)	Stopper, AC Cord	6518002310	1	USA/CANADA
53	Cord, AC Power	4408001430	1	EUROPE
(53)	Cord, AC Power	4408001410	1	USA/CANADA
54	System Ground	4408103710	1	
55	Jack, RCA, 4P	4438103410	2	
56	Heatsink, Regulator TR.	7505202410	4	
57	Jack RCA, 4P	4438103110	1	
58	Jack, RCA, 6P	4438108010	1	
59	Terminal Speaker, 2P	4408108710	1	
60	Jack RCA, 2P	4438111310	1	
	HARDWARE KIT			
S1	Screw, #2BTC 3x8 (B)	8109230083	25	
S2	Screw, #1PT 3X10B	8119130103	18	
S3	Screw, #2BTC 3x8 (Y)	8109230081	7	
S4	Screw, #2WPTC 3x8 (B)	8159230081	38	
S5	Screw, #HEX MSPW 3x12	8099130121	12	
S6	Screw, WSAM 4X8B	8159440083	10	
S7	Screw, #2BTC 3x8 (B)	8109230063	18	
S8	Screw, Ground	8155000710	4	
	MISCELLANEOUS			
TRANS	Power Transformer, 230V 50Hz	2828100257	1	EUROPE
(TRANS)	Power Transformer, 120V 60Hz	2828009981	1	USA/CANADA
	Ass'y Posistor	052438012202	2	
	Card Cable, 25P, 210mm	4118625215	1	

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the part list are of special significance to safety. When replacing a component identified with ⚠ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

GENERAL UNIT



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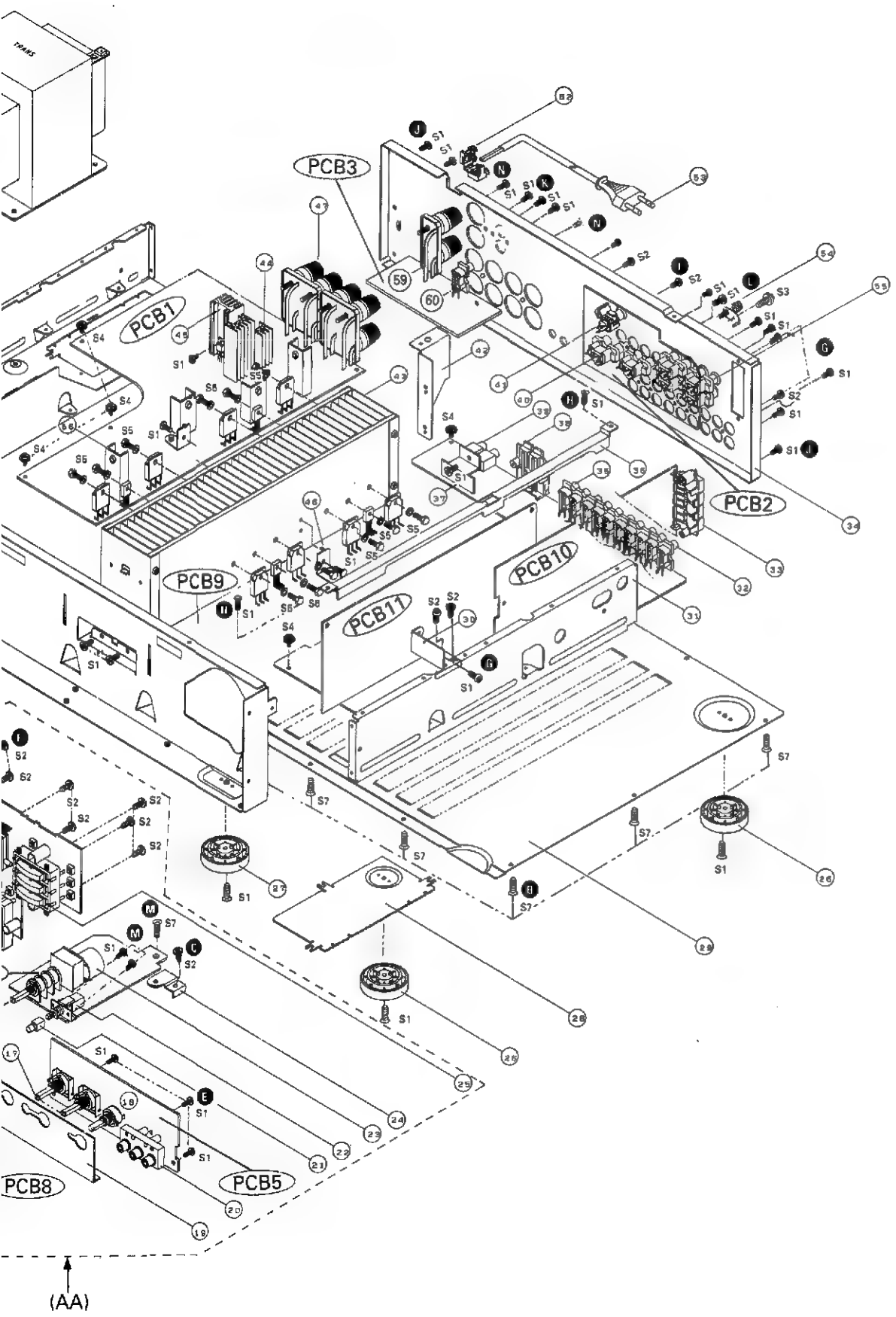
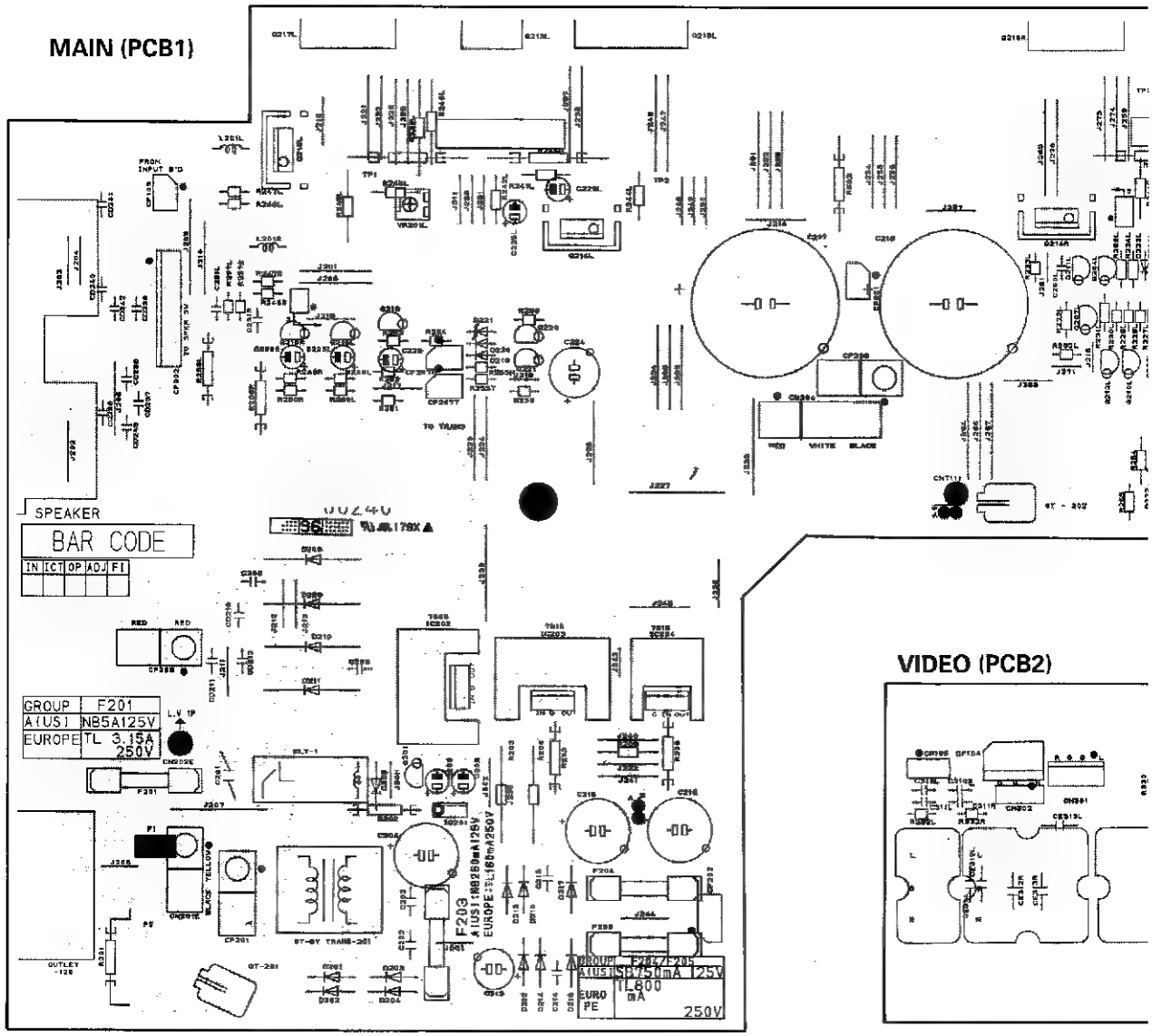


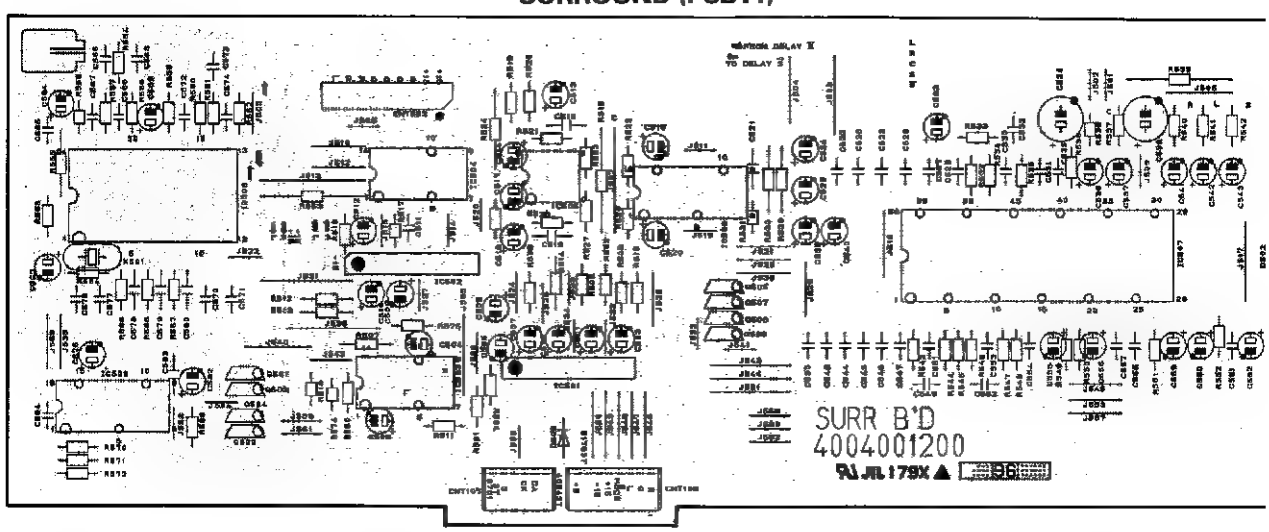
PRINTED CIRCUIT BOARDS

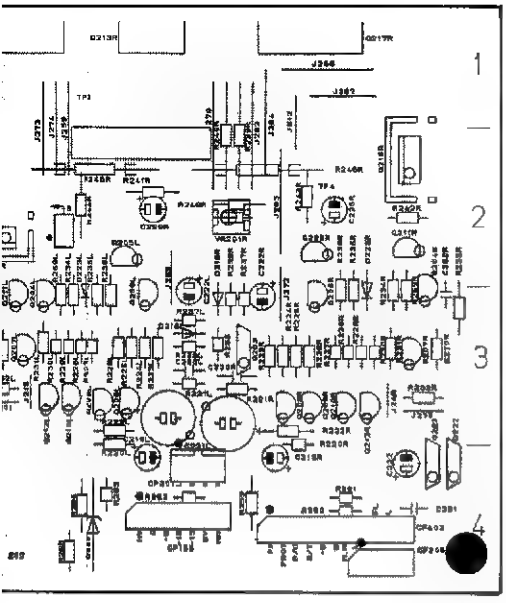
MAIN (PCB1)



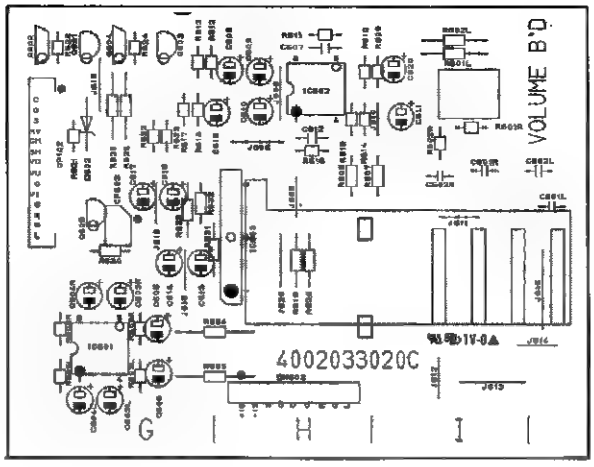
VIDEO (PCB2)

SURROUND (PCB11)

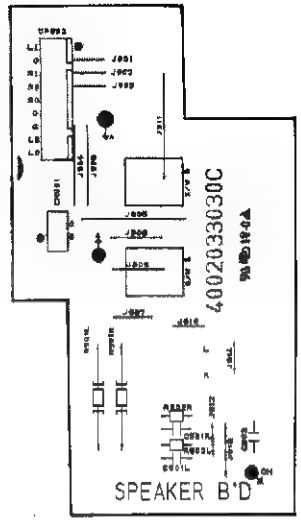


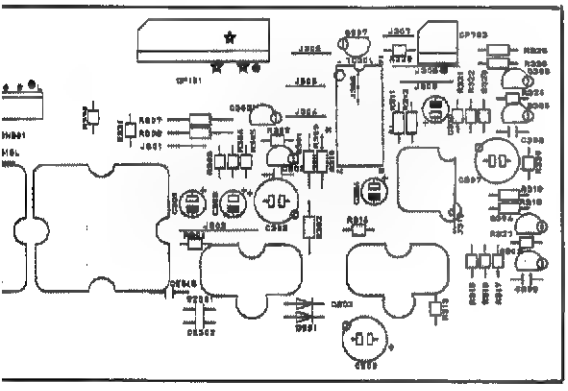


VOLUME (PCB6)

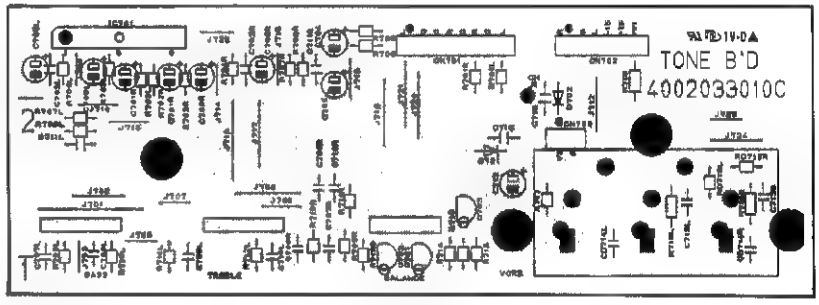


SPEAKER SEL. (PCB7)

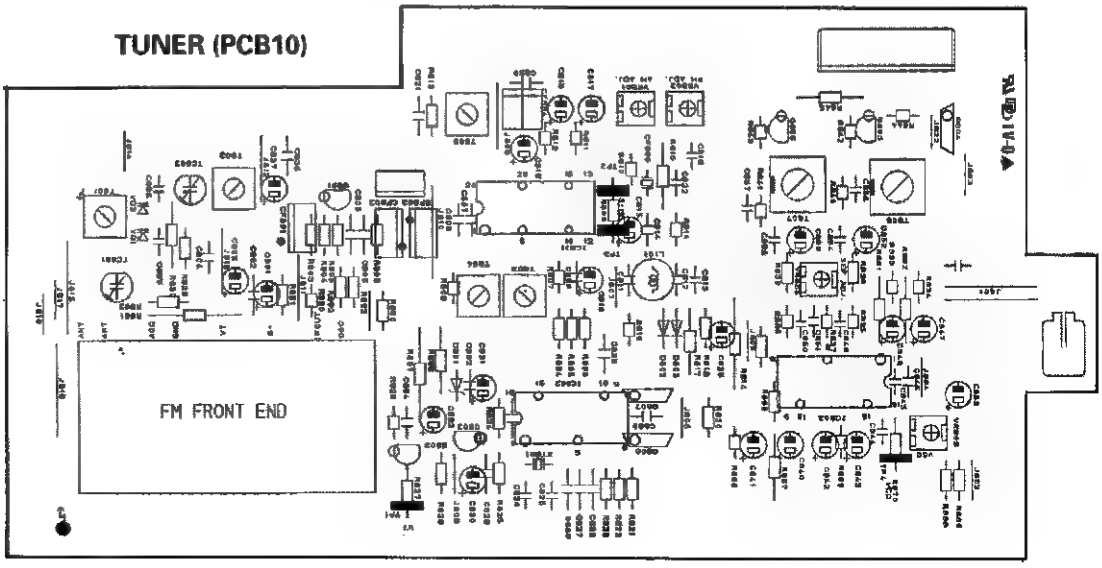




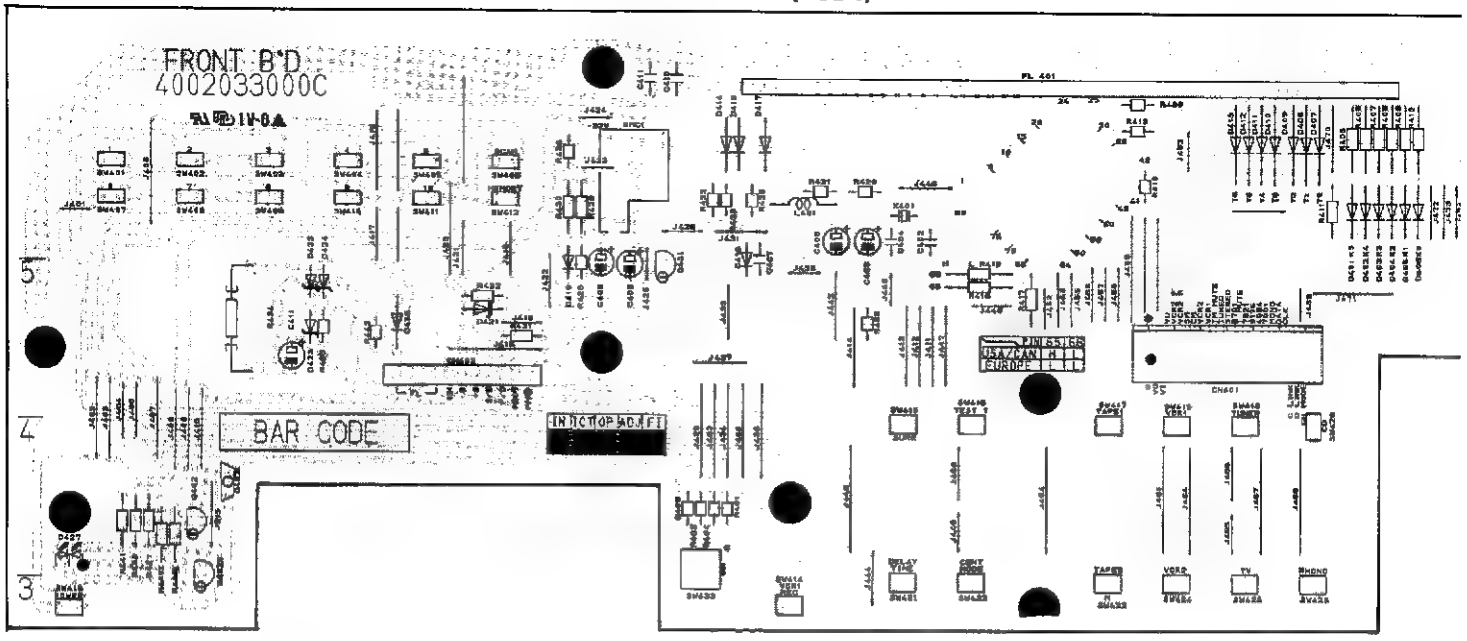
TONE (PCB5)



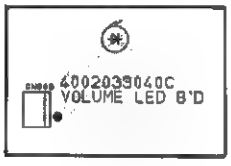
TUNER (PCB10)



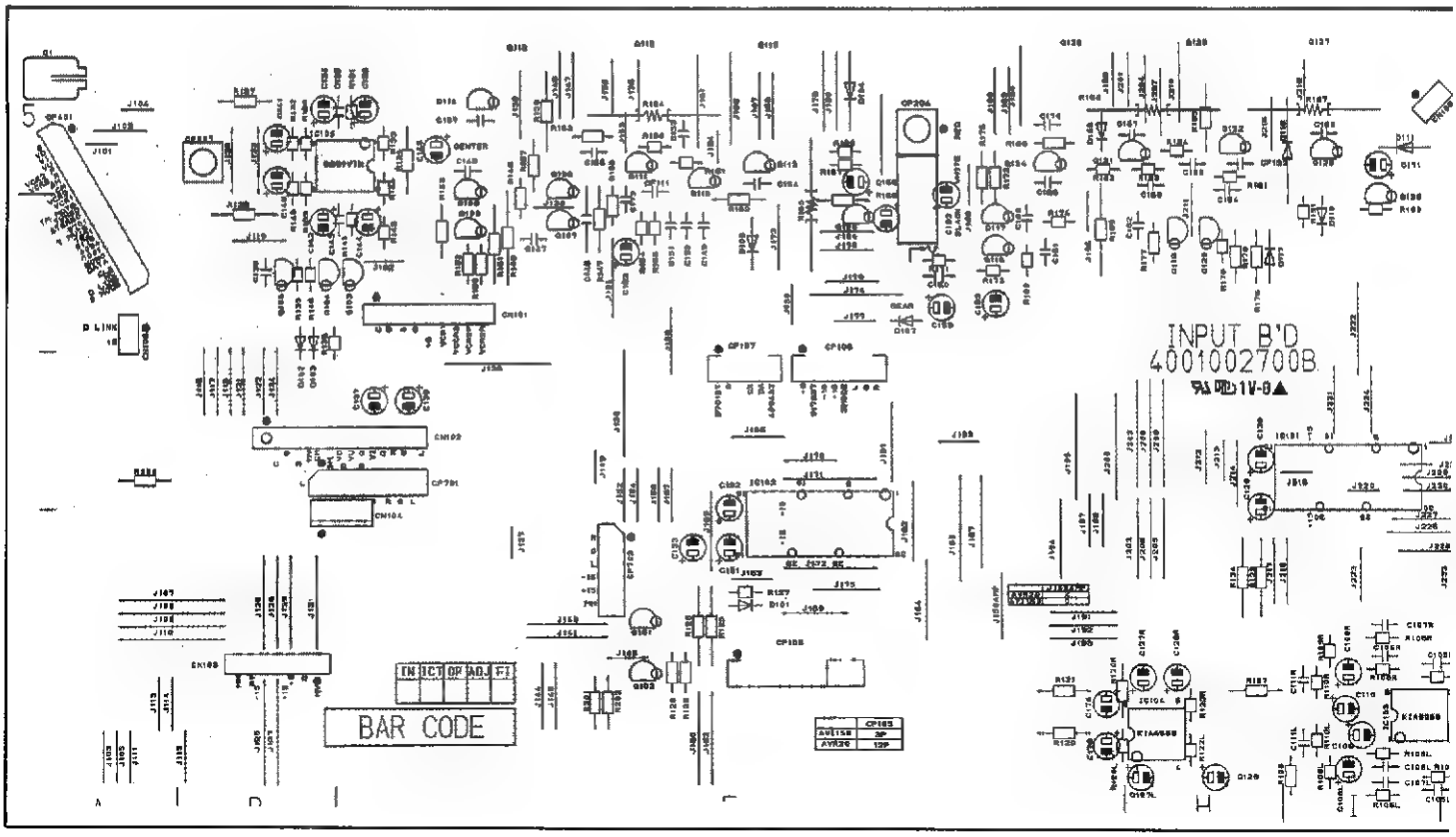
FRONT (PCB4)



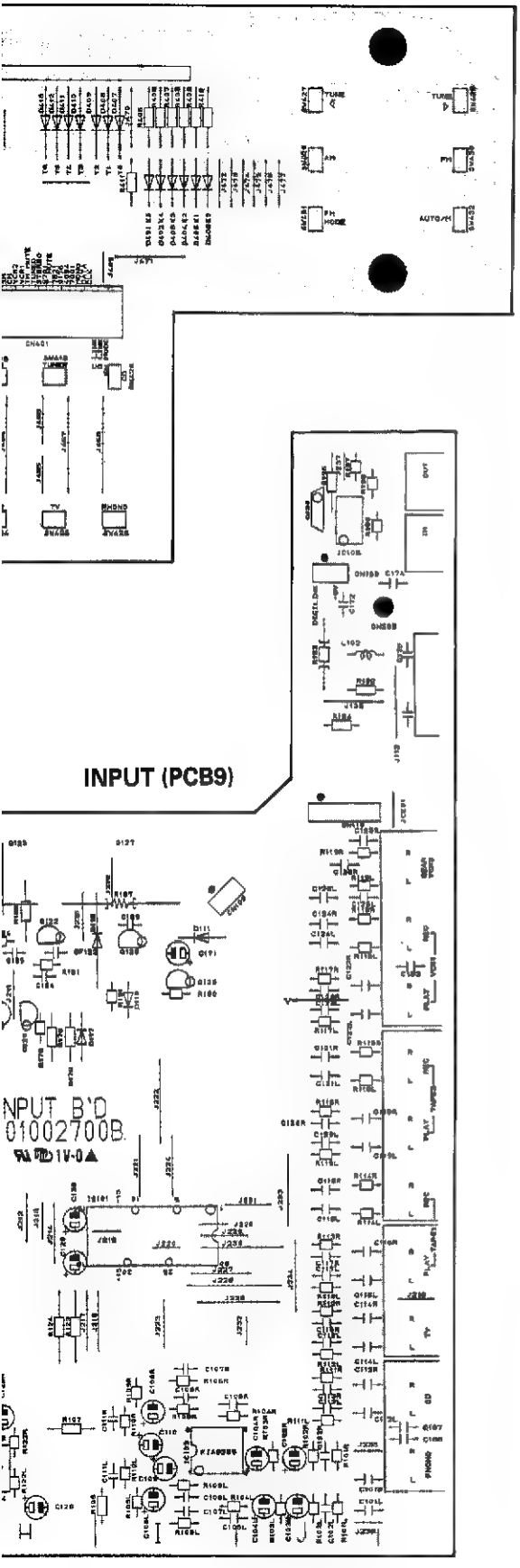
VOLUHE LED (PCB8)



INPUT (PCB9)



ELECTRICAL PARTS LIST



PRODUCT SAFETY NOTICE : Products marked with ⚠ have special characteristics important to safety. If you replace any of these components, read carefully the product safety notice in this manual.
Don't degrade the safety of the product through improper servicing.
Resistor/Capacitor tolerance – D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : +80, – 20%)

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
PCB1	ASSEMBLY P.C.BOARD MAIN							
	CAPACITORS							
C201	Ceramic Disc	0.0047	uF	400 V	K	3548472340	1	
C202/203	Mylar	0.047	uF	100 V	J	3679473120	2	
C204	Electrolytic SG	470	uF	16 V	M	3479347139	1	
C206	Electrolytic SG	22	uF	50 V	M	3479322071	1	
C208/209	Mylar	0.1	uF	250 V	J	3679104257	2	
C212	Ceramic Tubular	100	pF	35 V	K	3519101935	1	
C213/214	Mylar	0.047	uF	100 V	J	3679473120	2	
C215/216	Electric SG	1000	uF	35 V	M	3409310269	2	
C217/218	Electrolytic HM	8200	uF	63 V	M	3419582235	2	
C219L/R	Electrolytic SG	47	uF	25 V	M	3479347041	2	
C220L/R	Electrolytic SG	100	uF	50 V	J	3479310171	2	
C221L/R	Electrolytic SG	470	uF	10 V	M	3479347121	2	
C222	Electrolytic SG	10	uF	50 V	M	3479310071	1	
C222L/R	Electrolytic SG	1	uF	50 V	M	3479310971	2	
C223L/R	Mylar	0.068	uF	100 V	J	3679683120	2	
C224	Electrolytic SG	470	uF	10 V	M	3479347121	1	
C225	Electrolytic SA	10	uF	50 V	M	3479310071	1	
C225L/R	Electrolytic SG	10	uF	50 V	M	3479310071	2	
C229L/R	Electrolytic SG	4.7	uF	50 V	M	3479347971	2	
C231L/R	Mylar	0.047	uF	100 V	J	3679473120	2	
C260L/R	Ceramic Disc	5	pF	50 V	D	3579509030	2	
CD237-243	Ceramic Tubular	0.0047	uF	50 V	K	3519472935	3	EUROPE
CD210-212	Mylar	0.1	uF	250 V	J	3679104257	3	EUROPE
	COILS							
L201L/R	Inductor, 0.5 uH					2648001010	2	
	CONNECTORS							
CN204	Lead Ass'y 3P 530mm					4358800353	1	
CP103	Wafer 7P					4428505410	1	
CP109	Wafer 2P					4428508210	1	
CP201	Wafer 2P, LV					4428525780	1	
CP202	Wafer 3P					4428505710	1	
CP203	Wafer 2P, LV					4428525780	1	
CP205	Wafer 4P					4428505810	1	
CP206	Wafer 1P, LV					4428525860	1	
CP207H	Wafer 2P					4428508210	1	
CP207T	Wafer 2P					4428508210	1	
CP301	Wafer, 4P					4428517710	1	
CP402	Wafer 11P					4428510710	1	
CP901	Wafer 2P					4428508210	1	
CP902	Wafer 9P					4428518210	1	
	DIODES							
D201-205	1N4002, Rectifier					2258100135	5	
D208-211	PX6A03, Rectifier					2058100138	4	
D212-217	1N4002, Rectifier					2258100135	6	
D218L/R	1N4148M, Switching					2058322101	2	
D219/220	1N4148M, Switching					2058322101	2	
D221	Zener, UZ 9.1 BSC					2258599107	1	
D222	Zener, UZ 4.3 BSB					2258599102	1	
D223L/R	1N4148M, Switching					2058322101	2	
	INTEGRATED CIRCUITS							
IC201/202	GL7806, Regulator					2168601110	2	
IC203	GL7815, Regulator					2168602105	1	
IC204	GL7915, Regulator					2168602114	1	
	TRANSISTORS							
Q112	2SC4137, Bias NPN					2008622110	1	
Q115	2SC3854, NPN					2028416107	1	
Q116	2SA1490, PNP					2028116104	1	
Q123	2SC4137, Bias NPN					2008622110	1	
Q126	2SC3854, NPN					2028416107	1	
Q127	2SA1490, PNP					2028116104	1	
Q201	KTC1815Y/BKTC3198Y,NPN					2208606104	1	
Q203	DTC114YS, NPN					2208622106	1	
Q204L/R	KTA970/KTA1268, PNP					2208206104	2	
Q205L/R	KTA1015Y/BKTA1266Y, PNP					2208206105	2	
Q206L/R	KTA970/KTA1268, PNP					2208206104	2	
Q207L/R	KTC2240/BKTC3200, NPN					2208606108	2	
Q208L/R	KTA970/KTA1268, PNP					2208206104	2	
Q209L/R	KTA970/KTA1268, PNP					2208206104	2	
Q210L/R	KTC2240/BKTC3200, NPN					2208606108	2	

Ref. No.	Description	Mfr. Part No.	Q'ty	Version
Q211L/R	BKTA949/KTA1024, PNP	2208206102	2	
Q212L/R	KTC2229/KTC3206, NPN	2208606107	2	
Q213L/R	2SC4137, Bias NPN	2008622110	2	
Q214L/R	2SC4883A, NPN	2028316100	2	
Q215L/R	2SA1859A, PNP	2028016100	2	
Q216L/R	2SC3182N-O	2028307101	2	
Q217L/R	2SA1265N-O	2028007101	2	
Q218L/R	KTC1815Y/BKTC3198Y,NPN	2208606104	2	
Q219	KTA1015Y/BKTA1266Y, PNP	2208206105	1	
Q220/221	KTC1815Y/BKTC3198Y,NPN	2208606104	2	
Q222/223	DTC114YS, NPN	2208622106	2	
	RESISTORS			
R201	Carbon Film 3.3 Mohm 1/5 W J	3069335970	1	
R202	Metal Film 4.7 ohm 1 W J	3029479472	1	
R203/204	Metal Film 22 ohm 2 W J	3029220572	2	
R205	Metal Film 10 ohm 1 W J	3029100472	1	
R206	Metal Film 4.7 ohm 1 W J	3029479472	1	
R209	Carbon Film 3.3 kohm 1/5 W J	3069332970	1	
R220L/R	Carbon Film 330 ohm 1/5 W J	3069331970	2	
R221L/R	Carbon Film 33 kohm 1/5 W J	3069333970	2	
R222L/R	Carbon Film 1 kohm 1/5 W J	3069102970	2	
R223L/R	Carbon Film 1.5 kohm 1/5 W J	3069152970	2	
R224L/R	Carbon Film 390 ohm 1/5 W J	3069391970	2	
R225L/R	Carbon Film 1.5 kohm 1/5 W J	3069152970	2	
R226L/R	Carbon Film 390 ohm 1/5 W J	3069391970	2	
R227L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R228L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R229L/R	Carbon Film 82 ohm 1/5 W J	3069820970	2	
R230L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R231L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R232L/R	Carbon Film 22 kohm 1/5 W J	3069223970	2	
R233L/R	Carbon Film 22 kohm 1/5 W J	3069223970	2	
R234L/R	Carbon Film 82 ohm 1/5 W J	3069820970	2	
R235L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R236L/R	Carbon Film 270 ohm 1/5 W J	3069271970	2	
R237L/R	Carbon Film 10 kohm 1/5 W J	3069103970	2	
R238L/R	Carbon Film 33 kohm 1/5 W J	3069333970	2	
R239L/R	Carbon Film 360 ohm 1/4 W J	3069361970	2	
R240L/R	Carbon Film 1.2 kohm 1/4 W J	3069122970	2	
R241L/R	Carbon Film 82 ohm 1/5 W J	3069820970	2	
R242L/R	Carbon Film 33 kohm 1/5 W J	3069333970	2	
R243L/R	Carbon Film 1.5 kohm 1/5 W J	3069152970	2	
R244L/R	Carbon Film 1.8 kohm 1/5 W J	3069182970	2	
R245L/R	Cement 0.27 ohm 5 W K	3059278782	2	
R246L/R	Cement 0.27 ohm 5 W K	3059278782	2	
R247L/R	Carbon Film 22 ohm 1/5 W J	3069220970	2	
R248L/R	Carbon Film 22 ohm 1/5 W J	3069220970	2	
R249L/R	Carbon Film 910 ohm 1/5 W J	3069911970	2	
R250L/R	Carbon Film 6.8 kohm 1/5 W J	3069682970	2	
R251	Carbon Film 68 kohm 1/5 W J	3069683970	2	
R252	Carbon Film 100 kohm 1/5 W J	3069104970	2	
R253	Carbon Film 3.3 kohm 1/5 W J	3069332970	2	
R254	Carbon Film 1 kohm 1/5 W J	3069102970	2	
R255T	Carbon Film 6.8 kohm 1/5 W J	3069682970	1	
R256	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R257L/R	Carbon Film 24 kohm 1/5 W J	3069243970	2	
R258L/R	Metal Film 10 ohm 1 W J	3029100472	2	
R259	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R260	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R261	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R262	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R263	Carbon Film 2.4 kohm 1/5 W J	3069242970	1	
R264	Carbon Film 22 kohm 1/5 W J	3069223970	1	
R265	Carbon Film 15 kohm 1/5 W J	3069153970	1	
R266	Carbon Film 150 kohm 1/5 W J	3069154970	1	
R269L/R	Carbon Film 560 ohm 1/5 W J	3069561970	2	
R270L/R	Carbon Film 2.4 kohm 1/5 W J	3069242970	2	
	FUSES			
F201	5T 250 V, 3.15 A	5508302735	1	EUROPE
(F201)	NB 125 V, 5 A	5508203021	1	USA/CANADA
F203	TL 250 V, 160 mA	5508301035	1	EUROPE
(F203)	NB 125 V, 250 mA	5508201221	1	USA/CANADA
F204/205	TL 250 V, 800 mA	5508301934	2	EUROPE
(F204/205)	NB 125 V, 750 mA	5508101821	2	USA/CANADA
	MISCELLANEOUS			
GT201/202	Ground Plate	4235007310	2	
RLY-1	Relay, SDT-SS-112DM	5528043000	1	
TRANS201	Transformer, Standby, 230V, 50Hz	2828090901	1	EUROPE
(TRANS201)	Transformer, Standby, 120V, 60Hz	2828096001	1	USA/CANADA
44	Heatsink, Regulator TR.	7505206220	1	
45	Heatsink, Regulator TR.	7505206120	2	
47	Terminal, Speaker, 8P	4408105810	1	
56	Heatsink, Regulator TR.	7505202410	4	

Ref. No.	Description	Mfr. Part No.	Q'ty
PCB2	**ASSEMBLY P.C.BOARD VIDEO**		
	CAPACITORS		
C301	Electrolytic SG 33 uF 25 V M	3479333041	1
C302	Electrolytic SG 470 uF 10 V M	3479347121	1
C303	Ceramic Disc 470 pF 50V D	3579471130	1
C304	Electrolytic SG 33 uF 25 V M	3479333041	1
C305	Electrolytic SG 470 uF 10 V M	3479347121	1
C306	Ceramic Tubular 1 pF 50 V K	3519010935	1
C307	Electrolytic SG 470 uF 10 V M	3479347121	1
C308	Ceramic Tubular 1 pF 50 V K	3519010935	1
C309	Electrolytic SG 100 uF 10 V M	3479310121	1
C311	Ceramic Tubular 0.1 uF 50 V K	3519104935	1
CZ301/302	Ceramic Disc 0.1 uF 50 V Z	3579104534	2
	CONNECTORS		
CN301	Lead Ass'y, 4P, 600mm	436204608331	1
CN302	Lead Ass'y, 3P, 300mm	436103303331	1
CP101	Wafer, 9P, Angle	4428513490	1
CP104	Wafer 4P, Angle	4428513440	1
CP703	Wafer 2P, Angle	4428513420	1
	DIODES		
D301/302	1N4148M, Switching	2058322101	2
	INTEGRATED CIRCUIT		
IC301	GD4066, Switching	2138001101	1
	TRANSISTORS		
Q301	KTA1015Y/BKTA1266Y, PNP	2208206105	1
Q302	KTC1815Y/BKTC3198Y,NPN	2208606104	1
Q303	KTA1015Y/BKTA1266Y, PNP	2208206105	1
Q304	KTC1815Y/BKTC3198Y,NPN	2208606104	1
Q305	KTA1015Y/BKTA1266Y, PNP	2208206105	1
Q306	KTC1815Y/BKTC3198Y,NPN	2208606104	1
Q307	FEET, 2SK117Y	2218207106	1
	RESISTORS		
R301/302	Carbon Film 75 ohm 1/5 W J	3069750970	2
R303	Carbon Film 12 kohm 1/5 W J	3069123970	1
R304	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R305	Carbon Film 180 ohm 1/5 W J	3069181970	1
R306	Carbon Film 150 ohm 1/5 W J	3069151970	1
R307	Carbon Film 8.2 kohm 1/5 W J	3069822970	1
R308	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R309-312	Carbon Film 100 kohm 1/5 W J	3069104970	4
R313/314	Carbon Film 75 ohm 1/5 W J	3069750970	2
R315	Carbon Film 12 kohm 1/5 W J	3069123970	1
R316	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R317	Carbon Film 180 ohm 1/5 W J	3069181970	1
R318	Carbon Film 150 ohm 1/5 W J	3069151970	1
R319	Carbon Film 8.2 kohm 1/5 W J	3069822970	1
R320	Carbon Film 75 ohm 1/5 W J	3069750970	1
R321	Carbon Film 12 kohm 1/5 W J	3069123970	1
R322	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R323	Carbon Film 180 ohm 1/5 W J	3069181970	1
R324	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R325	Carbon Film 150 ohm 1/5 W J	3069151970	1
R326	Carbon Film 8.2 kohm 1/5 W J	3069822970	1
R327	Carbon Film 1.2 kohm 1/5 W J	3069122970	1
R329	Carbon Film 1 Mohm 1/5 W J	3069105970	1
R330/331	Carbon Film 470 ohm 1/5 W J	3069471970	2
	MISCELLANEOUS		
40	Jack, RCA, 2P	4438109310	2
41	Jack, RCA, 1P	4438113810	1
55	Jack, RCA, 4P	4438103410	2
PCB3	**ASSEMBLY P.C.BOARD SUB-WOOFER**		
C158	CAP, Mylar 0.047 uF 100 V J	3679473120	1
C174	CAP, Ceramic 0.047 uF 50 V K	3519473935	1
C312	CAP, Ceramic 0.047 uF 50 V K	3519473935	1
R169	RES, Carbon Film 10 ohm 1/5 W J	3069100970	1
R170	RES, Carbon Film 10 ohm 1/4 W J	3069100270	1
R195	RES, Carbon Film 24 kohm 1/5 W J	3069243970	1
R333L/R	RES, Carbon Film 1 kohm 1/5 W J	3069102970	2
L101	Coil, Inductor, 0.5 uH	2648001010	1
CP110	Connector, Wafer, 5P	4428506910	1
CP302	Connector, Wafer, 3P	4428505710	1
59	Terminal Speaker, 2P	4408108710	1
60	Jack RCA, 2P	4438111310	1
PCB4	**ASSEMBLY P.C.BOARD FRONT**		
	CAPACITORS		
C402	Ceramic CH 56 pF 50 V J	3528560210	1
C404	Ceramic CH 56 pF 50 V J	3528560210	1

fr. Part No.	Q'ty	Version
3479333041	1	
3479347121	1	
3579471130	1	
3479333041	1	
3479347121	1	
3519010935	1	
3479347121	1	
3519010935	1	
3479310121	1	
3519104935	1	
3579104534	2	
2204606331	1	
2103303331	1	
2428513490	1	
2428513440	1	
2428513420	1	
2058322101	2	
2138001101	1	
2208206105	1	
2208606104	1	
2208206105	1	
2208606104	1	
2208206105	1	
2208606104	1	
2218207106	1	
3069750970	2	
3069123970	1	
3069122970	1	
3069161970	1	
3069151970	1	
3069822970	1	
3069122970	1	
3069104970	4	
3069750970	2	
3069123970	1	
3069122970	1	
3069161970	1	
3069151970	1	
3069822970	1	
3069750970	1	
3069123970	1	
3069122970	1	
3069161970	1	
3069122970	1	
3069151970	1	
3069822970	1	
3069122970	1	
3069105970	1	
3069471970	2	
4438109310	2	
4438113810	1	
4438103410	2	
3479473120	1	
3519473935	1	
3519473935	1	
3519473935	1	
3069100970	1	
3069100270	1	
3069243970	1	
3069102970	2	
4648001010	1	
4428506910	1	
4428505710	1	
4408108710	1	
4438111310	1	
4428560210	1	
4428560210	1	

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
C405	Electric SS	47	uF	10 V	M	3409247022	1	
C406	Electrolytic, Back	0.047	uF	5.5 V	K	3438247315	1	
C407	Ceramic Disc	0.1	uF	50 V	Z	3579104534	1	
C408	Electrolytic SG	1	uF	50 V	M	3479310871	1	
C409	Electrolytic SG	10	uF	50 V	M	3479310071	1	
C410	Mylar	0.047	uF	100 V	J	3679473120	1	
C411	Electrolytic SG	100	uF	50 V	M	3479310171	1	
C411	Mylar	0.047	uF	100 V	J	3679473120	1	
	CONNECTORS							
CN401	Wafer 25P, 52575-2530					4428525826	1	
CN402	Lead Ass'y, 11P, 200 mm					436111203331	1	
	COIL							
L401	Inductor, 100 uH					2848610182	1	
	DIODES							
D401-415	1N4148M, Switching					2058322101	8	
D417-419	1N4148M, Switching					2058322101	3	
D421	Zener, UZ 4.3 BSB					2258599102	1	
D422/423	Zener, UZ 16.0 BSD					2258599117	2	
D424	Zener, UZ 9.1 BSC					2258599107	1	
D426	1N4002, Rectifier					2258100135	1	
D427	LED, SPR54MVW3, RED/GREEN					2308222302	1	
	INTEGRATED CIRCUIT							
IC401	CPU, CXP50112-568Q					213822181	1	
	TRANSISTORS							
Q401/402	KTC1815Y/BKTC3198Y,NPN					2208606104	2	
	RESISTORS							
R401-403	Carbon Film	10	kohm	1/5 W	J	3069103970	4	
R404	Carbon Film	22	kohm	1/5 W	J	3069223970	1	
R405-410	Carbon Film	47	kohm	1/5 W	J	3069473970	6	
R411	Carbon Film	220	kohm	1/5 W	J	3069224970	1	
R413	Carbon Film	330	kohm	1/5 W	J	3069334970	1	
R415	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R417-402	Carbon Film	10	kohm	1/5 W	J	3069103970	4	
R421	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R422/423	Carbon Film	47	kohm	1/5 W	J	3069473970	2	
R425	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R426	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R427	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R428	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R430	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R431/432	Carbon Film	4.7	kohm	1/5 W	J	3069472970	2	
R433	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R434	Metal Film	390	ohm	1 W	J	3029391472	1	
R436	Carbon Film	330	ohm	1/5 W	J	3069331970	1	
R435	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R439	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R440	Carbon Film	270	ohm	1/5 W	J	3069271970	1	
R441	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R442	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
	MISCELLANEOUS							
16(SW433)	Switch, Push					4628054410	1	
9	Switch, Tact					4658003710	32	
FL401	FIP, 11CM8, FL Display					2328130925	1	
RMC1	TFMT5360, 38 kHz, Remocon sensor					2408005001	1	
X401	Resonator, 4.19MHz					3938124005	1	
	Sponge, Rubber					6715020730	1	
PCB5	**ASSEMBLY P.C.BOARD TONE**							
	CAPACITORS							
C701L/R	Electrolytic SG	10	uF	50 V	M	3479310071	2	
C702L/R	Ceramic Tubular	47	pF	50 V	K	3519470935	2	
C703L/R	Electrolytic SG	4.7	uF	50 V	M	3479347971	2	
C704/705	Electrolytic SG	47	uF	25 V	M	3479347041	2	
C706L/R	Electrolytic SG	10	uF	50 V	M	3479310071	2	
C707L/R	Mylar	0.018	uF	100 V	J	3679183120	2	
C708L/R	Mylar	0.082	uF	63 V	K	3679823297	2	
C709L/R	Mylar	0.0039	uF	100 V	J	3679392120	2	
C710L/R	Mylar	0.018	uF	100 V	J	3679183120	2	
C711L/R	Ceramic Tubular	560	pF	50 V	K	3519561935	2	
C712	Electrolytic SG	33	uF	25 V	M	3479333041	1	
C713L/R	Ceramic Tubular	100	pF	50 V	K	3519101935	2	
C715/716	Ceramic Tubular	0.1	uF	50 V	K	3519104935	2	
	CONNECTORS							
CN701	Lead Ass'y, 8P, 200mm					436106203331	1	
CN702	Lead Ass'y, 6P, 220mm					436106223331	1	
CN703	Lead Ass'y 2P, 480 mm					436102483331	1	

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
	INTEGRATED CIRCUIT							
IC701	KIA7559S/KIA4559S,OP AMP					2168206103	1	
	TRANSISTORS							
Q701/702	KTD1302, NPN					2208606112	2	
Q703	KTA1015Y/BKTA1266Y, PNP					2208206105	1	
	RESISTORS							
R701L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R702L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R703L/R	Carbon Film	220	kohm	1/5 W	J	3069221970	2	
R704L/R	Carbon Film	1	Mohm	1/5 W	J	3069105970	2	
R705/706	Carbon Film	47	ohm	1/5 W	J	3069470970	2	
R707L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R708L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R709L/R	Carbon Film	18	kohm	1/5 W	J	3069183970	2	
R710L/R	Carbon Film	3.9	kohm	1/5 W	J	3069392970	2	
R711L/R	Carbon Film	2.7	kohm	1/5 W	J	3069272970	2	
R712L/R	Carbon Film	750	ohm	1/5 W	J	3069751970	2	
R713/714	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R715	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R716	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R717	Carbon Film	75	ohm	1/5 W	J	3069750970	1	
R718L/R	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
	MISCELLANEOUS							
17	Volume, Bass/Treble					3208049510	2	
18	Volume, Balance					3208052010	1	
20	Jack, RCA, 3P, VCR					4438109710	1	
	LUG, HI-WP #24BK LF 260					152624102857	1	
PCB6	**ASSEMBLY P.C.BOARD VOLUME**							
	CAPACITORS							
C601L/R	Mylar	0.1	uF	63 V	K	3679104297	2	
C602L/R	Ceramic Tubular	680	pF	50 V	K	3519681935	2	
C603L/R	Electrolytic SG	4.7	uF	50 V	M	3479347971	2	
C604L/R	Electrolytic SG	4.7	uF	50 V	M	3479347971	2	
C605/606	Electrolytic SG	47	uF	25 V	M	3479347041	2	
C607	Ceramic Disc	1000	pF	50 V	Z	3579102530	1	
C608	Electrolytic SG	1	uF	50 V	M	3479310871	1	
C609/610	Electrolytic SG	47	uF	25 V	M	3479347041	2	
C611	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C612	Ceramic Disc	1000	pF	50 V	Z	3579102530	1	
C614	Electrolytic SG	10	uF	50 V	M	3479310071	1	
C615/616	Electrolytic SG	100	uF	10 V	M	3479310121	2	
C617	Electrolytic SG	100	uF	16 V	M	3479310131	1	
C619	Electrolytic SA	10	uF	50 V	M	3479210071	1	
C620	Electrolytic SG	1	uF	50 V	M	3479310971	1	
	CONNECTORS							
CP102	Wafer 15P					4428517410	1	
CN602	Lead Ass'y, 9P, 180mm					436108183331	1	
CP603	Wafer 2P					4428508210	1	
	DIODES							
D602	Zener, UZ 4.3 BSB					2258599102	1	
D701	1N4148M, Switching					2058322101	1	
D702	1N4148M, Switching					2058322101	1	
	INTEGRATED CIRCUITS							
IC601/602	KIA7559P/KIA4559P,OP AMP					2168206104	2	
IC603	TA7291S					2168007204	1	
	TRANSISTORS							
Q601	KTD1302, NPN					2208606112	1	
Q602	KTA114Y/KRA107M, PNP					2238006103	1	
Q603	KTD1302, NPN					2208606112	1	
Q604	KTA114Y/KRA107M, PNP					2238006103	1	
Q605	DTC114TS, NPN					2208622108	1	
	RESISTORS							
R601L/R	Carbon Film	5.1	kohm	1/5 W	J	3069512970	2	
R602L/R	Carbon Film	18	kohm	1/5 W	J	3069183970	2	
R603L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R604/605	Carbon Film	100	ohm	1/5 W	J	3069101970	2	
R606L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R607/608	Carbon Film	5.1	kohm	1/5 W	J	3069512970	2	
R609	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R610	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R611	Carbon Film	6.2	kohm	1/5 W	J	3069622970	1	
R612	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R613	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R614	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R615	Carbon Film	1	kohm	1/5 W	J	3069102970	1	

Ref. No.	Description						Mfr. Part No.	Q'ty	Version
R618	Carbon Film	6.2	kohm	1/5 W	J		3069622970	1	
R617	Carbon Film	100	kohm	1/5 W	J		3069104970	1	
R618	Carbon Film	470	ohm	1/5 W	J		3069471970	1	
R619/620	Carbon Film	100	ohm	1/5 W	J		3069101970	2	
R621	Carbon Film	3.3	kohm	1/5 W	J		3069332970	1	
R622-624	Carbon Film	1	kohm	1/5 W	J		3069102970	3	
R625-628	Carbon Film	470	ohm	1/5 W	J		3069471970	1	
R630	Carbon Film	560	ohm	1/5 W	J		3069561970	1	
R631	Carbon Film	47	ohm	1/5 W	J		3069479970	1	
R632	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R633	Carbon Film	3	kohm	1/5 W	J		3069302970	1	
	MISCELLANEOUS								
22	Switch, Loud						4628059610	1	
23	Volume, Motor						3228019410	1	
PCB7	**ASSEMBLY P.C.BOARD SPEAKER**								
CN901	Connector, Lead Ass'y, 2P, 280mm						436102283321	1	
CN902	Connector, Lead Ass'y, 9P, 400mm						435209403401	1	
R901/902	RES, Metal Film	270	ohm	2 W	J		3029271572	2	
11	Jack, Phone						4438005020	1	
12	Switch, Push						4628043810	2	
13	Shield, Fence, knob						6165147910	1	
	LUG, HI-W AWG #24BK60						152624100626	1	
PCB8	**ASSEMBLY P.C.BOARD VOLUME LED**								
CN803	Connector, Lead Ass'y, 2P, 180mm						435102183181	1	
D801	LED, SLR 40MG3						2308220324	1	
PCB9	**ASSEMBLY P.C.BOARD INPUT**								
	CAPACITORS								
C101L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C102L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C103L/R	Electrolytic SG	1	uF	50 V	M		3479310971	2	
C104L/R	Electrolytic SG	33	uF	25 V	M		3479333041	1	
C105L/R	Ceramic Tubular	2200	pF	50 V	K		3519222935	2	
C106L/R	Mylar	0.0056	uF	100 V	J		3679562120	2	
C107L/R	Mylar	0.0018	uF	100 V	J		3679182120	2	
C108L/R	Electrolytic SG	1	uF	50 V	M		3479310971	2	
C109/110	Electrolytic SG	47	uF	25 V	M		3479347041	2	
C111L/R	Mylar	0.0018	uF	100 V	J		3679182120	2	
C112L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C113L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C114L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C115L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C116L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C117L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C118L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C119L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C120L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C121L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C122L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C123L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C124L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C125L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	EUROPE
C126L/R	Ceramic Tubular	100	pF	50 V	K		3519101935	2	
C127L/R	Electrolytic SG	4.7	uF	50 V	M		3479347971	2	
C128L/R	Electrolytic SG	4.7	uF	50 V	M		3479347971	2	
C129-132	Electrolytic SG	47	uF	25 V	M		3479347041	4	
C133/134	Electrolytic SG	1	uF	50 V	M		3479310971	2	
C135	Ceramic Disc	1000	pF	50 V	Z		3579102530	1	
C136	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C137	Electrolytic SG	47	uF	16 V	M		3479347031	1	
C138	Electrolytic SG	22	uF	25 V	M		3479322041	1	
C139	Mylar	0.022	uF	100 V	J		3679223120	1	
C140/141	Electrolytic SG	47	uF	25 V	M		3479347041	2	
C142	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C143	Ceramic Disc	1000	pF	50 V	Z		3579102530	1	
C144/145	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C146	Ceramic Tubular	680	pF	50 V	K		3519681935	1	
C147	Ceramic Tubular	470	pF	50 V	K		3519471935	1	
C148	Ceramic Tubular	27	pF	50 V	J		3519270935	1	
C149	Ceramic Tubular	15	pF	50 V	J		3519150935	1	
C151	Ceramic Disc	8	pF	50 V	D		3579809030	1	
C152	Electrolytic SG	33	uF	25 V	M		3479333041	1	
C153	Ceramic Disc	1000	pF	50 V	Z		3579102530	1	
C154	Ceramic Tubular	220	pF	50 V	K		3519221935	1	
C155	Mylar	0.047	uF	100 V	J		3679473120	1	
C156	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C157	Ceramic Tubular	220	pF	50 V	K		3519221935	1	
C159	Electrolytic SG	0.47	uF	50 V	M		3479347871	1	
C160	Ceramic Tubular	680	pF	50 V	K		3519681935	1	
C161	Ceramic Tubular	470	pF	50 V	K		3519471935	1	
C162	Ceramic Tubular	27	pF	50 V	J		3519270935	1	
C163	Electrolytic SG	33	uF	25 V	M		3479333041	1	

Ref. No.	Description						Mfr. Part No.	Q'ty	Version
C164	Ceramic Disc	8	pF	50 V	D		3579809030	1	
C166	Ceramic Disc	15	pF	50 V	J		3579150130	1	
C167	Ceramic Disc	1000	pF	50 V	Z		3579102530	1	
C168/169	Ceramic Tubular	220	pF	50 V	K		3519221935	2	
C170	Mylar	0.047	uF	100 V	J		3679473120	1	
C171	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C172	Mylar	0.047	uF	100 V	J		3679473120	1	
C173-175	Ceramic Disc	0.0047	uF	50 V	Z		3579472530	3	
C176	Electrolytic SG	47	uF	25 V	M		3479347041	1	
C178	Electrolytic SG	47	uF	25 V	M		3479347041	1	
C187	Ceramic Disc	0.1	uF	50 V	Z		3579104534	1	
C188	Ceramic Tubular	0.047	uF	50 V	K		3519473935	1	
	CONNECTORS								
CN101	Lead Ass'y, 9P, 300mm						436109303331	1	
CN102	Lead Ass'y, 15P, 160mm						436215163332	1	
CN103	Lead Ass'y, 7P 460mm						436107463331	1	
CN104	Lead Ass'y, 4P, 300mm						436104303331	1	
CN108	Lead Ass'y, 2P, 440mm						436402443231	1	
CN109	Lead Ass'y, 2P, 220mm						436102223331	1	
CN110	Lead Ass'y, 5P, 260mm						436105263331	1	
CP105	Wafer 12P						4428550120	1	
CP106	Wafer 8P						4428550080	1	
CP107	Wafer 6P						4428550060	1	
CN204(CP110)	Wafer 3P, LV						4428525790	1	
CP207	Wafer, 1P AC						4428525860	1	
CP401	Wafer, FPC, 25P						4428528370	1	
CP701	Wafer 8P						4428505510	1	
CP702	Wafer 6P						4428505810	1	
	COILS								
L101L/R	Inductor, 0.5 uH						2848001010	1	EUROPE
L102	Inductor, 50 uH						2848601470	1	
	DIODES								
D101-104	1N4148M, Switching						2058322101	4	
D106-108	1N4148M, Switching						2058322101	3	
D110/111	1N4148M, Switching						2058322101	2	
D116/117	1N4148M, Switching						2058322101	2	
	INTEGRATED CIRCUITS								
IC101/102	LC7821						2168017132	2	
IC103	KIA6259P, OP AMP						2168206107	1	
IC104/105	KIA7559P/KIA4559P,OP AMP						2168206104	2	
IC106	LTV817, Photo-Coupler						2408000136	1	
	TRANSISTORS								
Q103/104	KTC1815Y/BKTC3198Y,NPN						2208606104	2	
Q105	KTA114Y/KRA107M, PNP						2238006103	1	
Q106/107	KTC2240/BKTC3200, NPN						2208606108	2	
Q108/109	KTC1815Y/BKTC3198Y,NPN						2208606104	2	
Q110	BKTA949/KTA1024, PNP						2208206102	1	
Q111	KTC2229/KTC3206, NPN						2208606107	1	
Q113	BKTC2235/KTC1027, NPN						2228406120	1	
Q114	BKTA965/KTA1023, PNP						2228106107	1	
Q117/118	KTC2240/BKTC3200, NPN						2208606108	2	
Q119/120	KTC1815Y/BKTC3198Y,NPN						2208606104	2	
Q121	BKTA949/KTA1024, PNP						2208206102	1	
Q122	KTC2229/KTC3206, NPN						2208606107	1	
Q124	BKTC2235/KTC1027, NPN						2228406120	1	
Q125	BKTA965/KTA1023, PNP						2228106107	1	
Q128/129	KTC1815Y/BKTC3198Y,NPN						2208606104	2	
Q130	KTA114Y/KRA107M, PNP						2238006103	1	
	RESISTORS								
R101L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R102L/R	Carbon Film	91	kohm	1/5 W	J		3069913970	2	
R103L/R	Carbon Film	91	kohm	1/5 W	J		3069913970	2	
R104L/R	Carbon Film	820	ohm	1/5 W	J		3069821970	2	
R105L/R	Carbon Film	560	kohm	1/5 W	J		3069564970	2	
R106L/R	Carbon Film	43	kohm	1/5 W	J		3069433970	2	
R107/108	Carbon Film	47	ohm	1/5 W	J		3069470970	2	
R109L/R	Carbon Film	470	ohm	1/5 W	J		3069471970	2	
R110L/R	Carbon Film	100	kohm	1/5 W	J		3069104970	2	
R111L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R112L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R113L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R114L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R115L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R116L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R117L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R118L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R119L/R	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R120L/R	Carbon Film	47	kohm	1/5 W	J		3069473970	2	
R121	Carbon Film	470	ohm	1/5 W	J		3069471970	1	

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
R122L/R	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R123-126	Carbon Film	470	ohm	1/5 W	J	3069471970	4	
R127	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R128/129	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R130	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R131	Carbon Film	12	kohm	1/5 W	J	3069123970	1	
R132	Carbon Film	2	kohm	1/5 W	J	3069202970	1	
R133	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R134	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R135	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R136	Carbon Film	2.2	kohm	1/5 W	J	3069222970	1	
R137/138	Carbon Film	470	ohm	1/5 W	J	3069471970	2	
R139	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R140	Carbon Film	2	kohm	1/5 W	J	3069202970	1	
R141	Carbon Film	12	kohm	1/5 W	J	3069123970	1	
R144	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R145	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R146	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R147	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R148	Carbon Film	680	ohm	1/5 W	J	3069681970	1	
R149/150	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R151/152	Carbon Film	43	kohm	1/5 W	J	3069433970	2	
R153	Carbon Film	43	kohm	1/5 W	J	3069433970	1	
R154	Carbon Film	1.8	kohm	1/5 W	J	3069182970	1	
R155	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R156	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R157	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R159	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R160	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R161	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R162	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R163	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R164/165	Cement	0.27	ohm	3 W	K	3059278682	2	
R166	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R167	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R168	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R171	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R172/173	Carbon Film	10	kohm	1/5 W	J	3069103970	2	
R174	Carbon Film	680	ohm	1/5 W	J	3069681970	1	
R175	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R176	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R177/178	Carbon Film	4.3	kohm	1/5 W	J	3069432970	2	
R179	Carbon Film	43	kohm	1/5 W	J	3069433970	1	
R180	Carbon Film	1.8	kohm	1/5 W	J	3069182970	1	
R181	Carbon Film	39	kohm	1/5 W	J	3069393970	1	
R182	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R183	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R184	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R185	Carbon Film	120	ohm	1/5 W	J	3069121970	1	
R186	Carbon Film	220	ohm	1/5 W	J	3069221970	1	
R187/188	Cement	0.27	ohm	3 W	K	3059278682	2	
R189	Carbon Film	270	ohm	1/5 W	J	3069271970	1	
R190	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R191	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R192	Carbon Film	10	ohm	1/5 W	J	3069100970	1	
R193	Carbon Film	10	ohm	1/4 W	J	3069100270	1	
R194	Carbon Film	24	kohm	1/5 W	J	3069243970	1	
R196	Carbon Film	3.9	kohm	1/5 W	J	3069392970	1	
R197	Carbon Film	47	ohm	1/5 W	J	3069470970	1	
R198	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R199	Carbon Film	270	ohm	1/5 W	J	3069271970	1	
R200	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R201	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R202	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
	MISCELLANEOUS							
32	Jack, RCA, 4P					4438108110	1	
35	Jack, RCA, 6P					4438103210	1	
38	Terminal, Speaker, 4P					4408106410	1	
39	Jack, Multi					4438006510	2	
57	Jack RCA, 4P					4438103110	1	
58	Jack, RCA, 6P					4438108010	1	
G1	Ground Plate					4235007310	1	
	LUG, HI-WP #24BK FF 100					152624101043	1	
	LUG, HI-WP #24BK FF 180					152624101843	1	

PCB10	ASSEMBLY P.C.BOARD TUNER							
	CAPACITORS							
C801	Electrolytic SG	100	uF	25 V	M	3479310141	1	
C802	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C804-809	Ceramic Tubular	0.022	uF	50 V	K	3519223935	6	
C810	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C811	Ceramic Tubular	82	pF	50 V	K	3519820935	1	EUROPE
C812	Ceramic Tubular	100	pF	35 V	K	3519101935	1	EUROPE

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
C813	Mylar	0.033	uF	100 V	J	3679333120	1	
C814	Ceramic Tubular	100	pF	35 V	K	3519101935	1	EUROPE
(C814)	Ceramic Tubular	330	pF	35 V	K	3519331935	1	USA/CANADA
C815	Electrolytic SA	0.47	uF	50 V	M	3479247871	1	
C816	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C817	Electrolytic SA	4.7	uF	50 V	M	3479247971	1	
C818	Electrolytic SA	3.3	uF	50 V	M	3479233971	1	
C819	Electrolytic SA	4.7	uF	50 V	M	3479247971	1	
C820	Ceramic Tubular	47	pF	50 V	K	3519470935	1	
C821	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C822	Mylar	0.0033	uF	100 V	J	3679332120	1	
C823	Electrolytic SA	2.2	uF	50 V	M	3479222971	1	
C824/825	Ceramic CH	33	pF	50 V	J	3528330210	2	
C826-828	Ceramic Tubular	100	pF	35 V	K	3519101935	3	
C829	Ceramic Tubular	0.01	pF	50 V	K	3519103935	1	
C830	Electrolytic SA	1	uF	50 V	M	3479210971	1	
C831	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C832	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C833	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C834	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C835	Mylar	0.047	uF	100 V	J	3679473120	1	
C836	Poly	470	pF	50 V	J	3619471110	1	
C837	Electrolytic SA	10	uF	50 V	M	3479210071	1	
C838	Ceramic Tubular	0.022	uF	50 V	K	3519223935	1	
C839	Ceramic Tubular	0.01	pF	50 V	K	3519103935	1	
C840	Electrolytic SA	3.3	uF	50 V	M	3479233971	1	
C841/842	Electrolytic SA	1	uF	50 V	M	3479210971	1	
C843	Electrolytic SA	3.3	uF	50 V	M	3479233971	1	
C844	Poly	1000	pF	50 V	J	3619102110	1	
C845	Mylar	0.047	uF	100 V	J	3679473120	1	
C846	Ceramic Tubular	680	pF	50 V	K	3519681935	1	
C847/848	Electrolytic SA	22	uF	35 V	M	3479222061	2	
C849/850	Mylar	0.001	uF	100 V	J	3679102120	2	EUROPE
(C849/850)	Mylar	0.0015	uF	100 V	J	3679152120	2	USA/CANADA
C851	Ceramic Tubular	150	pF	50 V	J	3519151935	1	
C852/853	Electrolytic SA	2.2	uF	50 V	M	3479222971	2	
C856/857	Mylar	0.0039	uF	100 V	J	3679392120	2	
C858	Electrolytic SG	100	uF	25 V	M	3479310141	1	
TC801	Trimmer, 10pF					3579200130	1	
TC802	Trimmer, 20pF					3579100030	1	
	FILTERS							
CF801/802	Ceramic, SFE 10.7MA8					3908011001	2	
CF803	Ceramic, SFE 10.7MA8					3908011001	1	EUROPE
CF804	Ceramic, SFZ450F					3908001380	1	
CF805	Ceramic, BFU450C					3908001020	1	
	CONNECTOR							
CN105	Wafer, 12P					4428560120	1	
	DIODES							
D801	Zener, UZ 5.1 BSB					2258599103	1	
D802/803	1N4148M, Switching					2058322101	2	
VD1/VD2	KV1236Z, Varactor					2058819108	2	
	INTEGRATED CIRCUITS							
IC801	LA1266					2168017128	1	
IC802	LM7001					2138017112	1	
IC803	HA12016					2168411105	1	
	TRANSISTORS							
Q801	KTC1923, NPN					2208406103	1	
Q802	2SK168, FEET					2018211100	1	
Q803	KTC2240/BKTC3200, NPN					2208606106	1	
Q804	DTA114YS					2208222105	1	
Q805/806	KTC1815Y/BKTC3198Y,NPN					2208606104	2	
Q808	DTA114YS					2208222105	1	
	RESISTORS							
R801	Carbon Film	100	kohm	1/5 W	J	3069104970	1	EUROPE
R802	Carbon Film	62	kohm	1/5 W	J	3069623970	1	EUROPE
R803	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R804	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R805/806	Carbon Film	330	ohm	1/5 W	J	3069331970	2	
R807	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R808	Carbon Film	3.3	kohm	1/5 W	J	3069332970	1	
R809	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R810	Carbon Film	82	ohm	1/5 W	J	3069820970	1	
R811	Carbon Film	24	kohm	1/5 W	J	3069243970	1	
R812	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R813	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	
R814	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R815	Carbon Film	2.2	kohm	1/5 W	J	3069222970	1	
R816	Carbon Film	1.8	kohm	1/5 W	J	3069182970	1	EUROPE
(R816)	Carbon Film	2.7	kohm	1/5 W	J	3069272970	1	USA/CANADA

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
R817/818	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R819	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R820	Carbon Film	22	kohm	1/5 W	J	3069223970	1	
R821-823	Carbon Film	1	kohm	1/5 W	J	3069102970	3	
R824	Carbon Film	820	ohm	1/5 W	J	3069821970	1	
R825	Carbon Film	1.5	kohm	1/5 W	J	3069152970	1	
R826	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R827	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R828	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R829/830	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R831/832	Carbon Film	22	kohm	1/5 W	J	3069223970	2	
R833/834	Carbon Film	2	kohm	1/5 W	J	3069202970	2	EUROPE
(R833/834)	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	USA/CANADA
R835/836	Carbon Film	47	kohm	1/5 W	J	3069473970	2	
R837	Carbon Film	3.9	kohm	1/5 W	J	3069392970	1	
R838/839	Carbon Film	2.4	kohm	1/5 W	J	3069242970	2	EUROPE
(R838/839)	Carbon Film	3.3	kohm	1/5 W	J	3069332970	2	USA/CANADA
R842/843	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R844/845	Carbon Film	3	kohm	1/5 W	J	3069302970	2	
R850	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R865	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R867/868	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R869	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R870	Carbon Film	5.6	kohm	1/5 W	J	3069562970	1	
R888/889	Carbon Film	270	ohm	1/5 W	J	3069271970	2	
R890/891	Carbon Film	220	ohm	1/5 W	J	3069221970	2	
R892-898	Carbon Film	270	ohm	1/5 W	J	3069271970	7	
	COILS							
L801	Inductor, 20.8 mH					2648601430	1	
T801	AM ANT					2608201120	1	
T802	OSC, AM					2638201150	1	
T803	FM Quad DET (A)					2838501110	1	
T804	FM Quad DET (B)					2838501210	1	
T805	AM IFT, P-7SB					2848001250	1	
T806/807	MPX, 19k/38kHz					2658001050	2	
	SEMI FIXED RESISTORS							
VR801	Semi, 20 k (B)					3248020343	1	
VR802	Semi, 50 k (B)					3248050343	1	
VR803	Semi, 5 k (B)					3248050243	1	
VR804	Semi, 200 k (B)					3248020443	1	
	MISCELLANEOUS							
	Terminal, Antenna					4408106210	1	
FE1	FM Front-end, FE407-G60					3928601890	1	EUROPE
(FE1)	FM Front-end, FE43-505H					3928101790	1	USA/CANADA
XT801	Resonator, 7.2 MHz					3908101031	1	

PCB11 ASSEMBLY P.C.BOARD SURROUND

	CAPACITORS							
C501	Electrolytic SG	10	uF	50 V	M	3479310071	1	
C502	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C503-505	Electrolytic SG	10	uF	50 V	M	3479310071	3	
C506	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C507/508	Electrolytic SG	10	uF	50 V	M	3479310071	2	
C509/510	Electrolytic SG	47	uF	25 V	M	3479347041	2	
C511	Ceramic Tubular	100	pF	50 V	K	3519101935	1	
C512	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C513	Electrolytic SG	0.47	uF	50 V	J	3479347871	1	
C514	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C515	Ceramic Tubular	680	pF	50 V	K	3519681935	1	
C516	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C517	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C518	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C519	Ceramic Tubular	680	pF	50 V	K	3519681935	1	
C520	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C521	Ceramic Tubular	100	pF	50 V	K	3519101935	1	
C522	Mylar	0.1	uF	63 V	K	3679104297	1	
C523	Mylar	0.022	uF	100 V	J	3679223120	1	
C524/525	Electrolytic SG	4.7	uF	50 V	M	3479347971	2	
C526-528	Mylar	0.22	uF	63 V	K	3679224297	3	
C529	Mylar	0.68	uF	63 V	K	3679684297	1	
C530	Poly	470	pF	50 V	J	3619471110	1	
C531	Mylar	0.047	uF	100 V	J	3679473120	1	
C532	Mylar	0.0022	uF	100 V	J	3679222120	1	
C533	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C534	Electrolytic SG	220	uF	16 V	M	3479322131	1	
C535	Mylar	0.0056	uF	100 V	J	3679562120	1	
C536/537	Electrolytic SG	1	uF	50 V	M	3479310971	2	
C538	Electrolytic SG	220	uF	16 V	M	3479322131	1	
C539	Electrolytic SG	10	uF	50 V	M	3479310071	1	
C540	Electrolytic SG	0.22	uF	50 V	K	3479322871	1	
C541-543	Electrolytic SG	1	uF	50 V	M	3479310971	2	

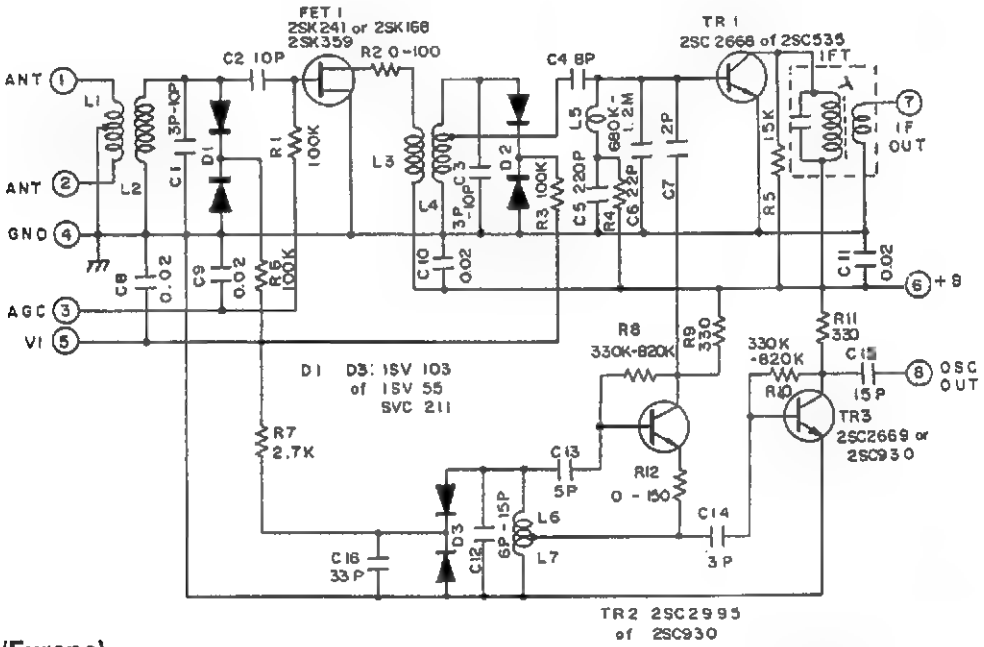
Ref. No.	Description					Mfr. Part No.	Q'ty	Version
C544-546	Mylar	0.1	uF	63 V	K	3679104297	3	
C547/548	Mylar	0.22	uF	63 V	K	3679224297	2	
C549	Mylar	0.1	uF	63 V	K	3679104297	1	
C550	Mylar	0.047	uF	100 V	J	3679473120	1	
C551	Poly	680	pF	50 V	J	3619681110	1	
C552	Mylar	0.1	uF	63 V	K	3679104297	1	
C553	Poly	680	pF	50 V	J	3619681110	1	
C554	Mylar	0.047	uF	100 V	J	3679473120	1	
C555	Electrolytic SG	10	uF	35 V	M	3479310061	1	
C556	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C557/558	Mylar	0.1	uF	63 V	K	3679104297	2	
C559	Electrolytic SG	1	uF	50 V	M	3479310971	1	
C560	Electrolytic SG	10	uF	35 V	M	3479310061	1	
C561	Mylar	0.0047	uF	100 V	J	3679472120	1	
C562	Electrolytic SG	22	uF	50 V	M	3479322071	1	
C563	Mylar	0.0056	uF	100 V	J	3679562120	1	
C564	Electrolytic SG	100	uF	10 V	M	3479310121	1	
C565	Ceramic Disc	0.1	uF	50 V	Z	3579104534	1	
C566	Mylar	0.0056	uF	100 V	J	3679562120	1	
C567	Ceramic Tubular	470	pF	50 V	K	3519471935	1	
C568	Mylar	0.1	uF	63 V	K	3679104297	1	
C569	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C570/571	Mylar	0.047	uF	100 V	J	3679473120	2	
C572	Mylar	0.1	uF	63 V	K	3679104297	1	
C573	Mylar	0.0033	uF	100 V	J	3679332120	1	
C574	Ceramic Disc	470	pF	50 V	K	3579471130	1	
C576/577	Ceramic Disc	270	pF	50 V	K	3579271130	2	
C578-580	Ceramic Tubular	100	pF	50 V	K	3519101935	3	
C582	Electrolytic SG	47	uF	25 V	M	3479347041	1	
C583	Ceramic Tubular	0.01	uF	50 V	J	3519103935	1	
C584	Ceramic Tubular	100	pF	50 V	K	3519101935	1	
C585	Electrolytic SG	100	uF	10 V	M	3479310121	1	
	CONNECTORS							
CN106	Wafer, 8P					4428560080	1	
CN107	Wafer, 6P					4428560060	1	
CNT602	Wafer, 9P					4428507010	1	
	DIODES							
D501-503	1N4148M, Switching					2058322101	3	
	INTEGRATED CIRCUITS							
IC501/502	KIA7559S/KIA4559S,OP AMP					2188206103	2	
IC503/504	LC4966					2138017108	2	
IC505	KIA7559P/KIA4559P,OP AMP					2188206104	1	
IC506	TC9176P					2138007124	1	
IC507	NJM2177L					2188020115	1	
IC508	NJU9701D					2188020114	1	
IC509	MC14094BCP					2138009115	1	
	TRANSISTORS							
Q501/502	KTA114Y/KRA107M, PNP					2238006103	2	
Q503/504	DTC114YS, NPN					2208622106	2	
Q505/506	KTA114Y/KRA107M, PNP					2238006103	2	
Q507/508	DTC114YS, NPN					2208622106	2	
	RESISTORS							
R501	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R502/503	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R504	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R505-508	Carbon Film	100	kohm	1/5 W	J	3069104970	4	
R510/511	Carbon Film	150	kohm	1/5 W	J	3069154970	2	
R512/513	Carbon Film	100	ohm	1/5 W	J	3069101970	2	
R514/515	Carbon Film	22	kohm	1/5 W	J	3069223970	2	
R516	Carbon Film	120	kohm	1/5 W	J	3069124970	1	
R517	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R518	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R519	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R520	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R521	Carbon Film	3.6	kohm	1/5 W	J	3069362970	1	
R522	Carbon Film	560	kohm	1/5 W	J	3069564970	1	
R523	Carbon Film	1.8	kohm	1/5 W	J	3069182970	1	
R524	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
R525	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R526	Carbon Film	4.7	kohm	1/5 W	J	3069472970	1	
R527	Carbon Film	1.8	kohm	1/5 W	J	3069182970	1	
R528	Carbon Film	560	kohm	1/5 W	J	3069564970	1	
R529-531	Carbon Film	1	kohm	1/5 W	J	3069102970	3	
R532	Carbon Film	330	kohm	1/5 W	J	3069334970	1	
R533-535	Carbon Film	15	kohm	1/5 W	J	3069153970	3	
R536-538	Carbon Film	100	kohm	1/5 W	J	3069104970	3	
R539	Carbon Film	47	ohm	1/5 W	J	3069470970	1	
R540/541	Carbon Film	100	kohm	1/5 W	J	3069104970	2	
R542	Carbon Film	10	kohm	1/5 W	J	3069103970	1	
R543	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	

Ref. No.	Description					Mfr. Part No.	Q'ty	Version
R544	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R545	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R546	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R547	Carbon Film	47	kohm	1/5 W	J	3069473970	1	
R548	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R549	Carbon Film	22	kohm	1/5 W	J	3069223970	1	
R550	Carbon Film	10	Mohm	1/5 W	J	3069106970	1	
R551	Carbon Film	22	kohm	1/5 W	J	3069223970	1	
R552	Carbon Film	100	kohm	1/5 W	J	3069104970	1	
R553	Carbon Film	8.2	kohm	1/5 W	J	3069822970	1	
R554	Carbon Film	7.5	kohm	1/5 W	J	3069752970	1	
R555	Carbon Film	56	ohm	1/5 W	J	3069560970	1	
R556	Carbon Film	18	kohm	1/5 W	J	3069183970	1	
R557	Carbon Film	5.6	kohm	1/5 W	J	3069562970	1	
R558	Carbon Film	22	ohm	1/5 W	J	3069220970	1	

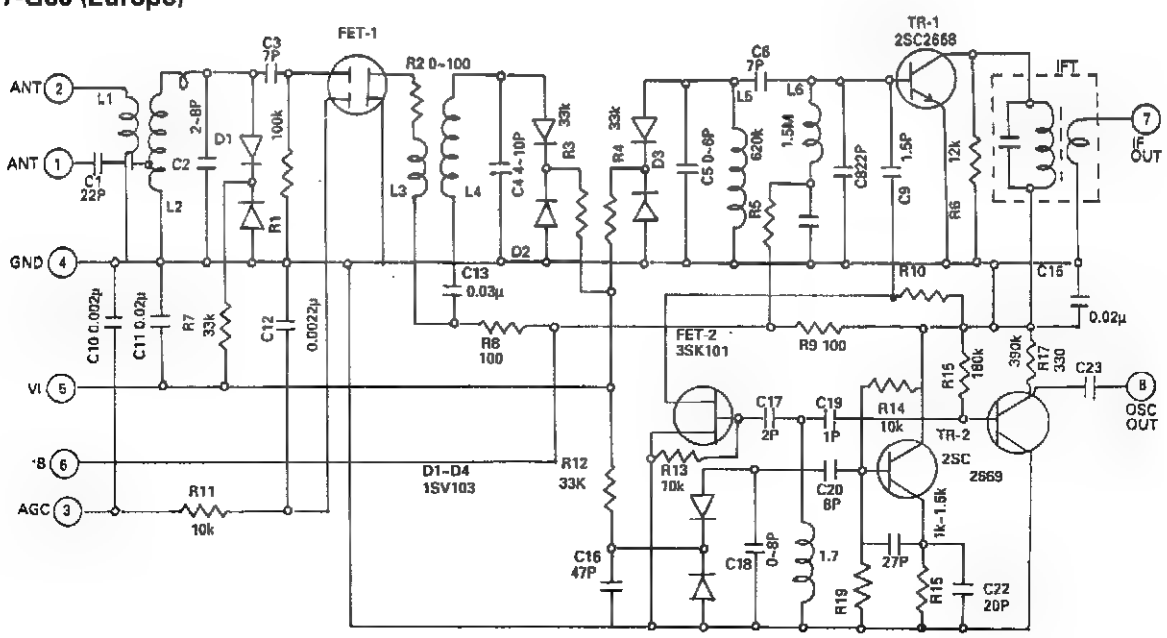
Ref. No.	Description					Mfr. Part No.	Q'ty	Version
R559	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R560	Carbon Film	22	ohm	1/5 W	J	3069220970	1	
R561	Carbon Film	18	kohm	1/5 W	J	3069183970	1	
R562	Carbon Film	15	kohm	1/5 W	J	3069153970	1	
R563	Carbon Film	47	ohm	1/5 W	J	3069470970	1	
R564	Carbon Film	1	Mohm	1/5 W	J	3069105970	1	
R565-567	Carbon Film	1	kohm	1/5 W	J	3069102970	3	
R569	Carbon Film	470	ohm	1/5 W	J	3069471970	1	
R570	Carbon Film	1	kohm	1/5 W	J	3069102970	1	
R571/572	Carbon Film	1	kohm	1/5 W	J	3069102970	2	
R573	Carbon Film	100	ohm	1/5 W	J	3069101970	1	
	MISCELLANEOUS							
X501	Resonator, 2MHz					3936124001	1	

IC FUNCTIONAL BLOCK DIAGRAM

FRONT-END : FE FTH3-505H (USA/CA)

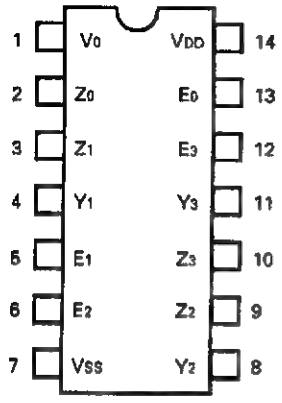


FE407-G60 (Europe)



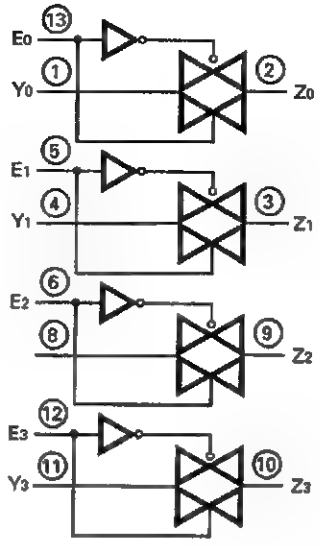
IC301 GD4066

CONNECTION DIAGRAM
DIP(TOP VIEW)



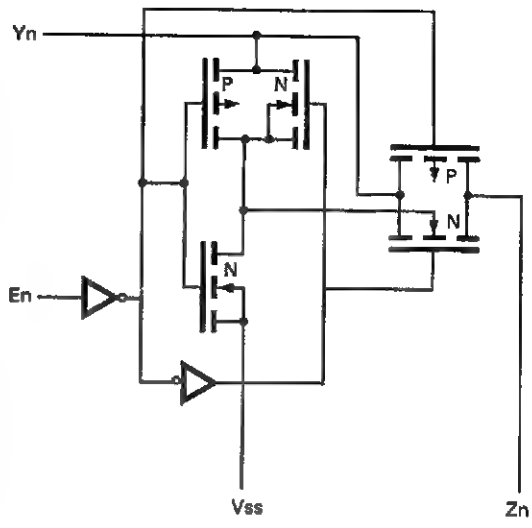
NOTE:
The SO Package has the same pinouts (Connection Diagram) as the Dual-line Package.

LOGIC SYSBOL

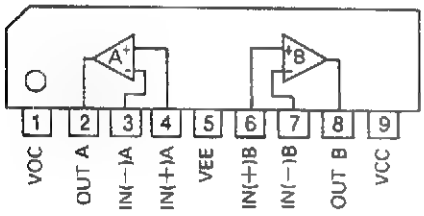


VDD = Pin14
Vss = Pin7
○ = Pin Numbers

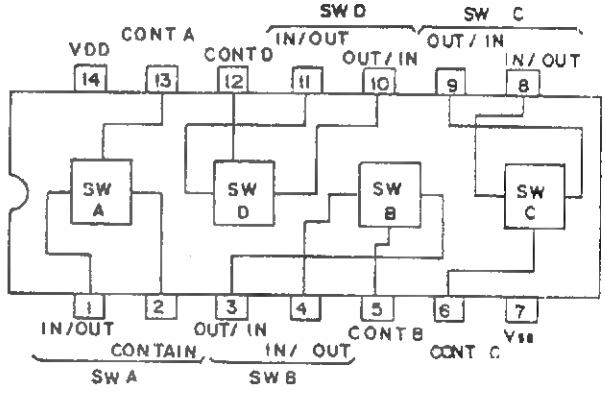
LOGIC DIAGRAM (1/4 OF A 4066B)



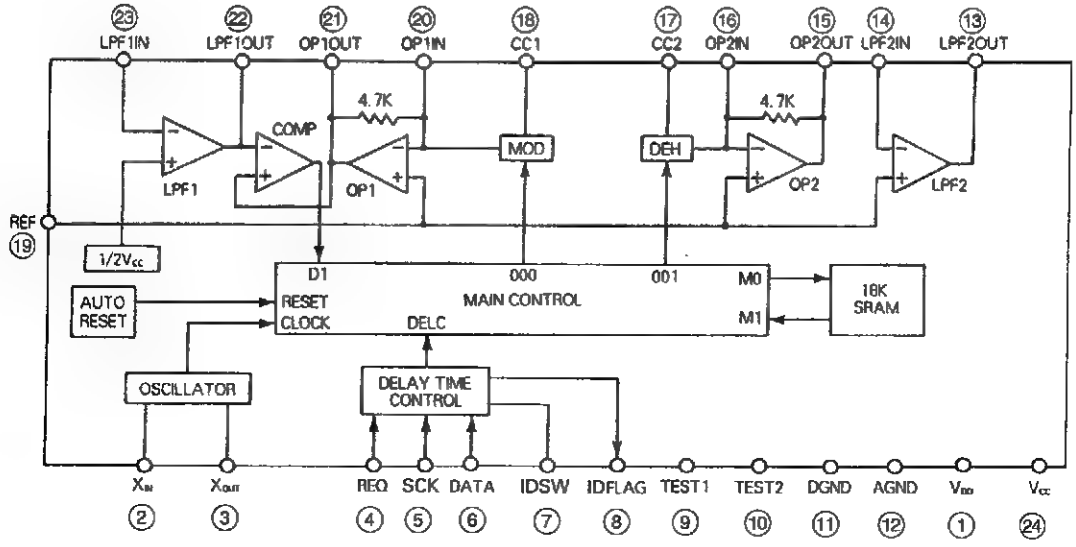
IC701, IC501, IC502 KIA75559/KIA4559S



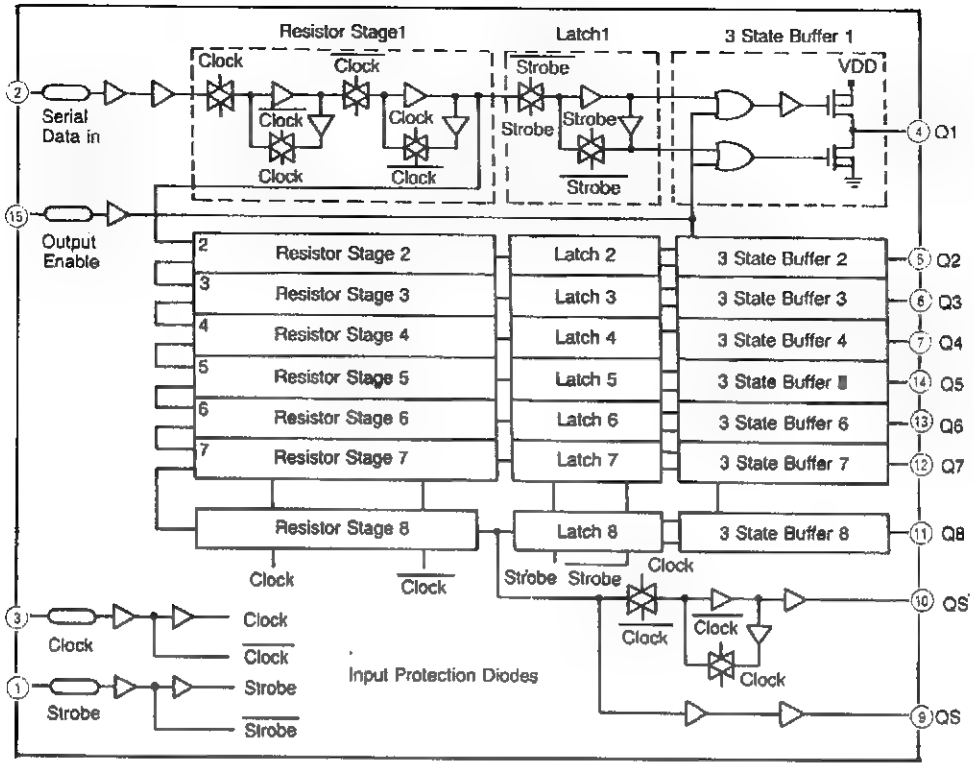
IC503, IC504 LC4966



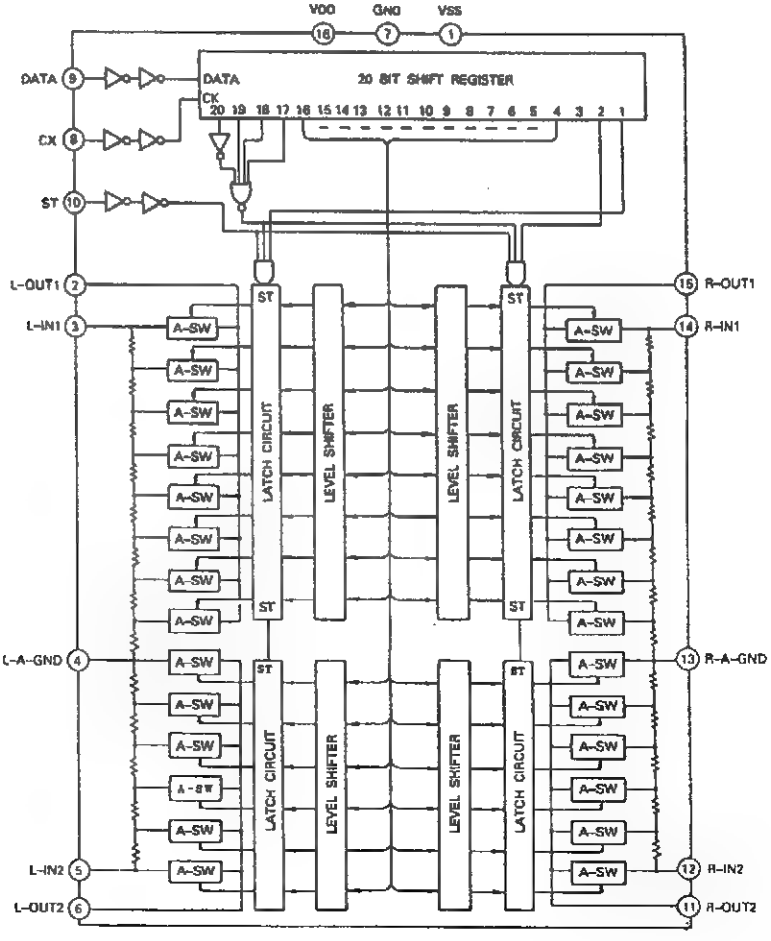
IC508 NJM9701D



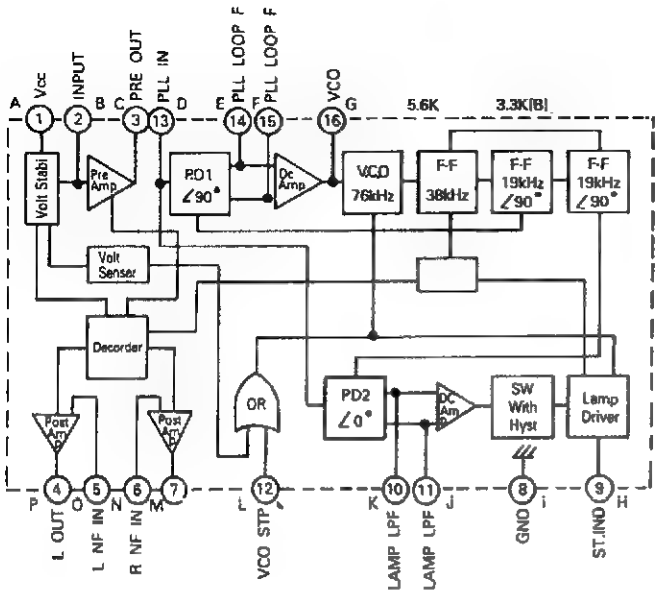
IC509 MC14094BCP



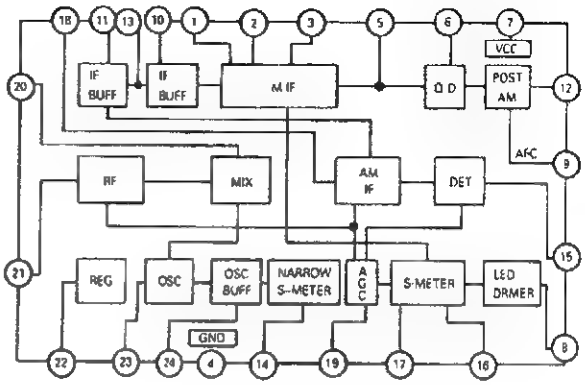
IC506 TC9176P



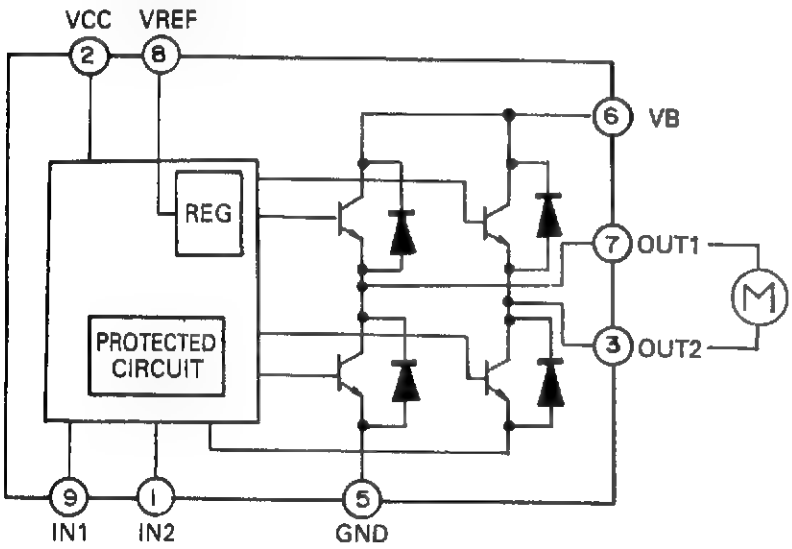
IC803 HA12016



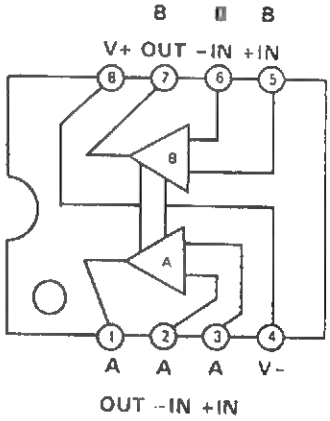
IC801 LA1266



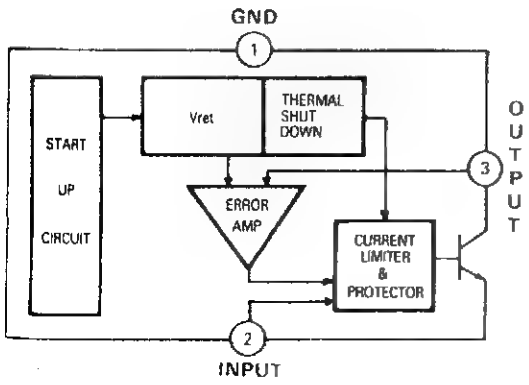
IC603 TA7291S



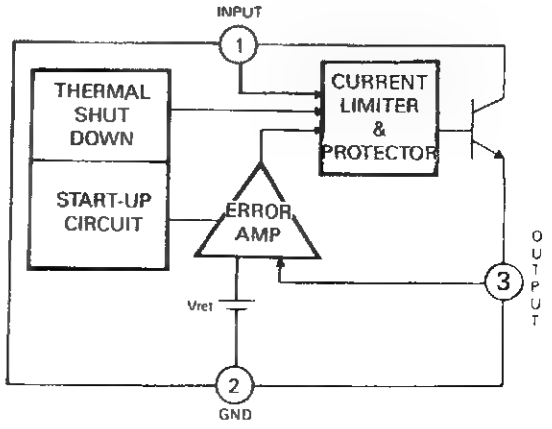
IC601, IC602, IC104, IC105
KIA 75559P/KIA 4559P
IC103 KIA 6259P



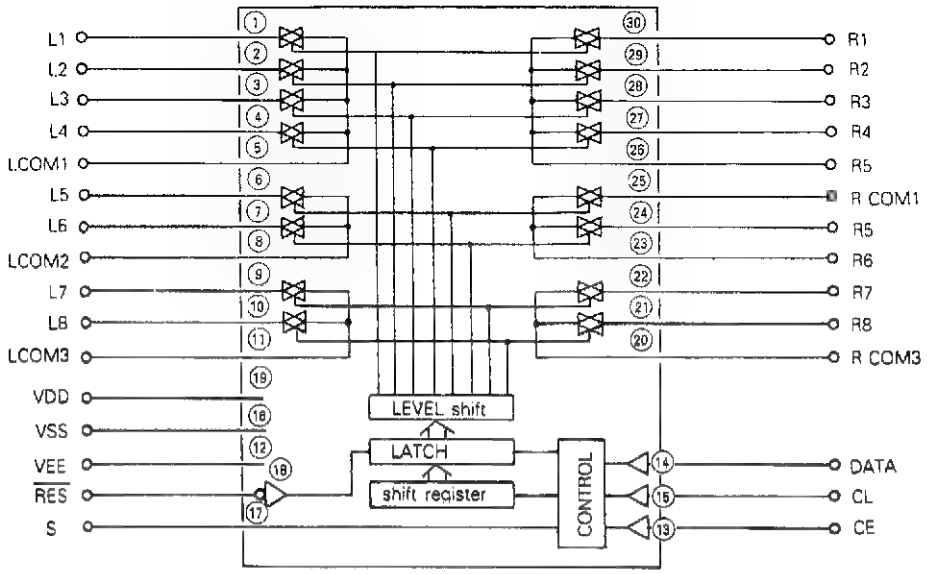
IC204 GL7915



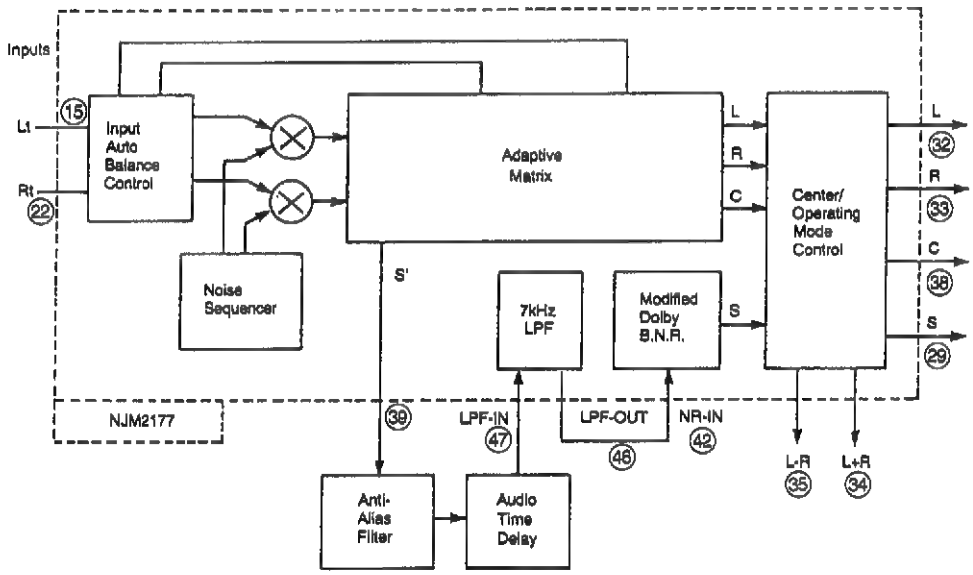
IC201, 202, IC203 GL7806, GL07815



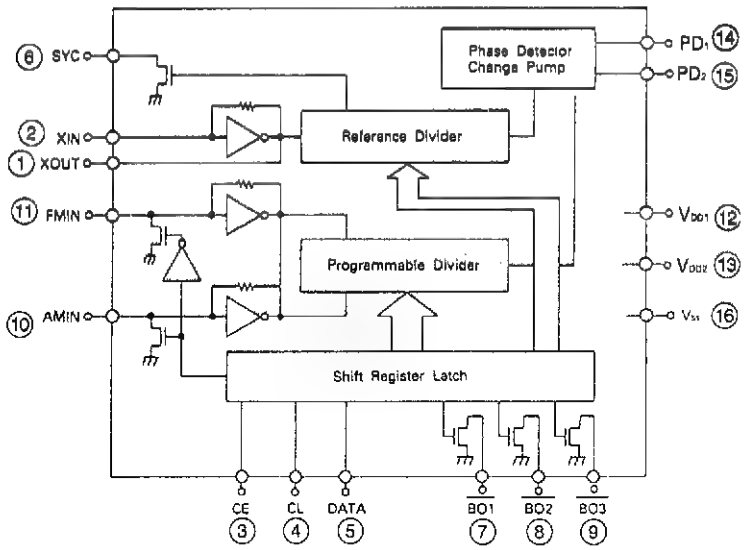
IC101, IC102 LC7821



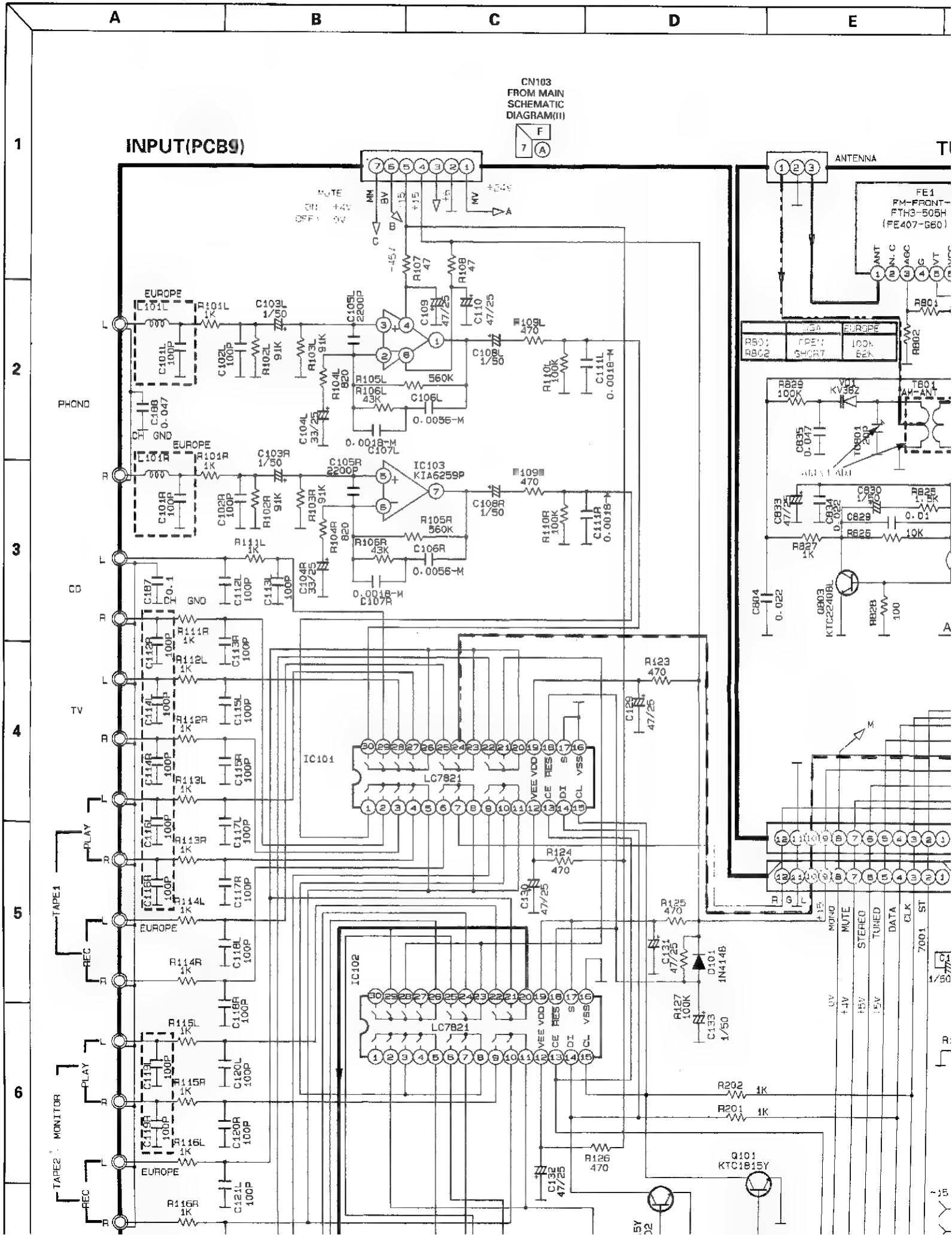
IC507 NJM2177L

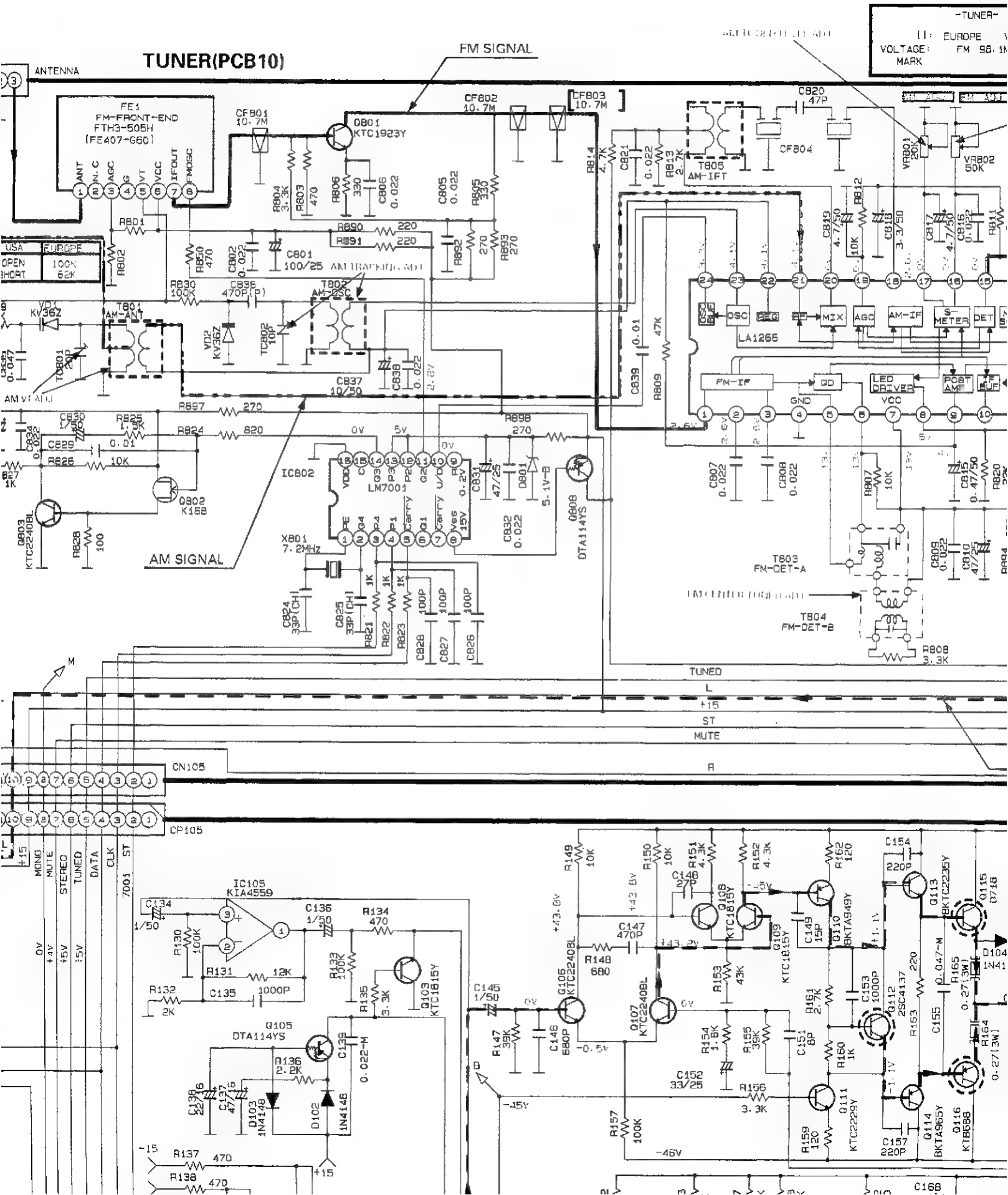


IC802 LM7001

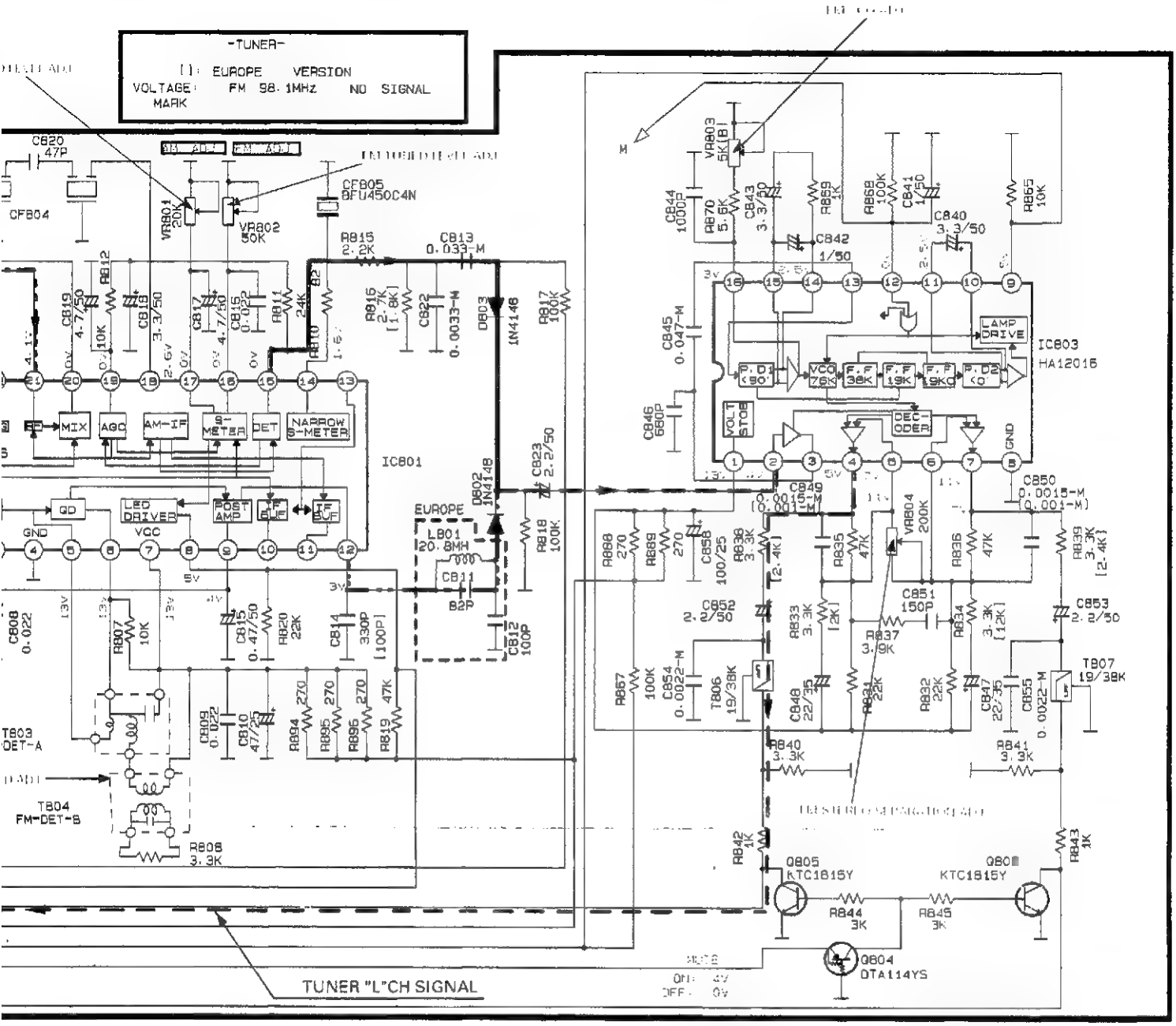


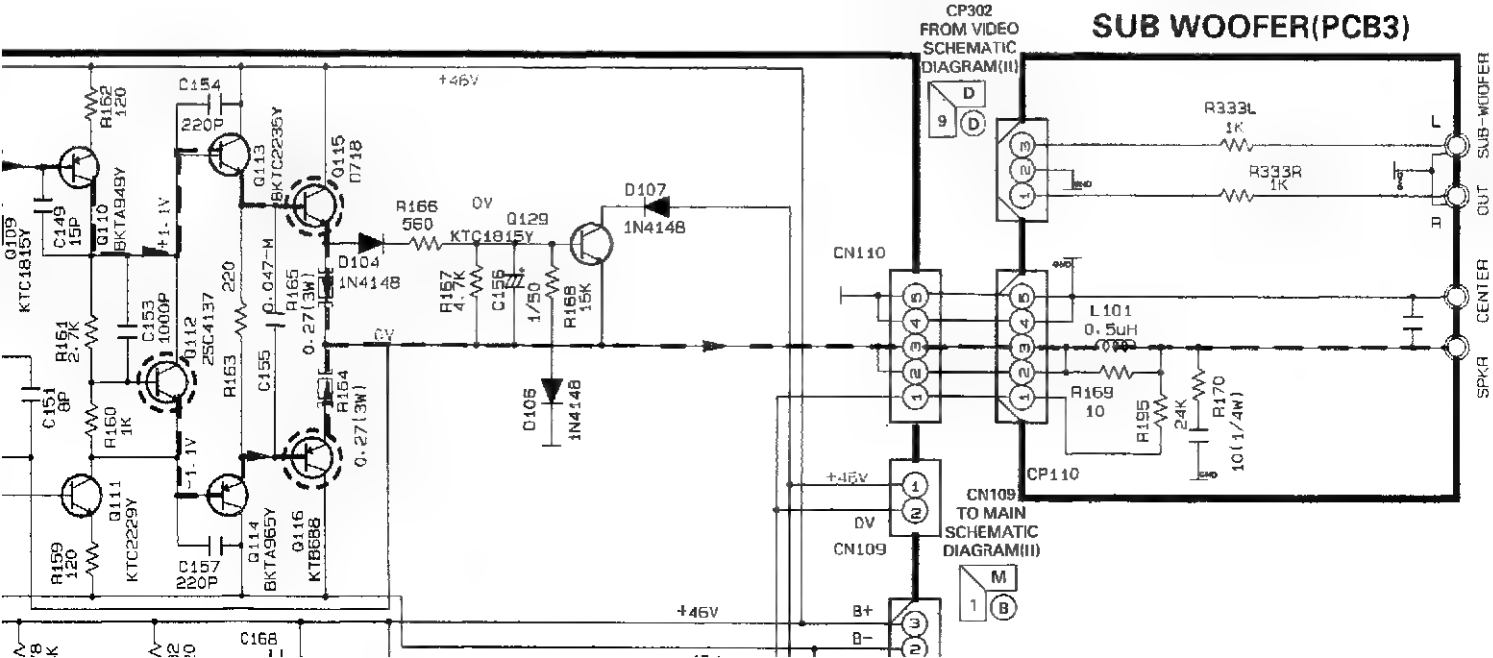
SCHEMATIC DIAGRAMS I

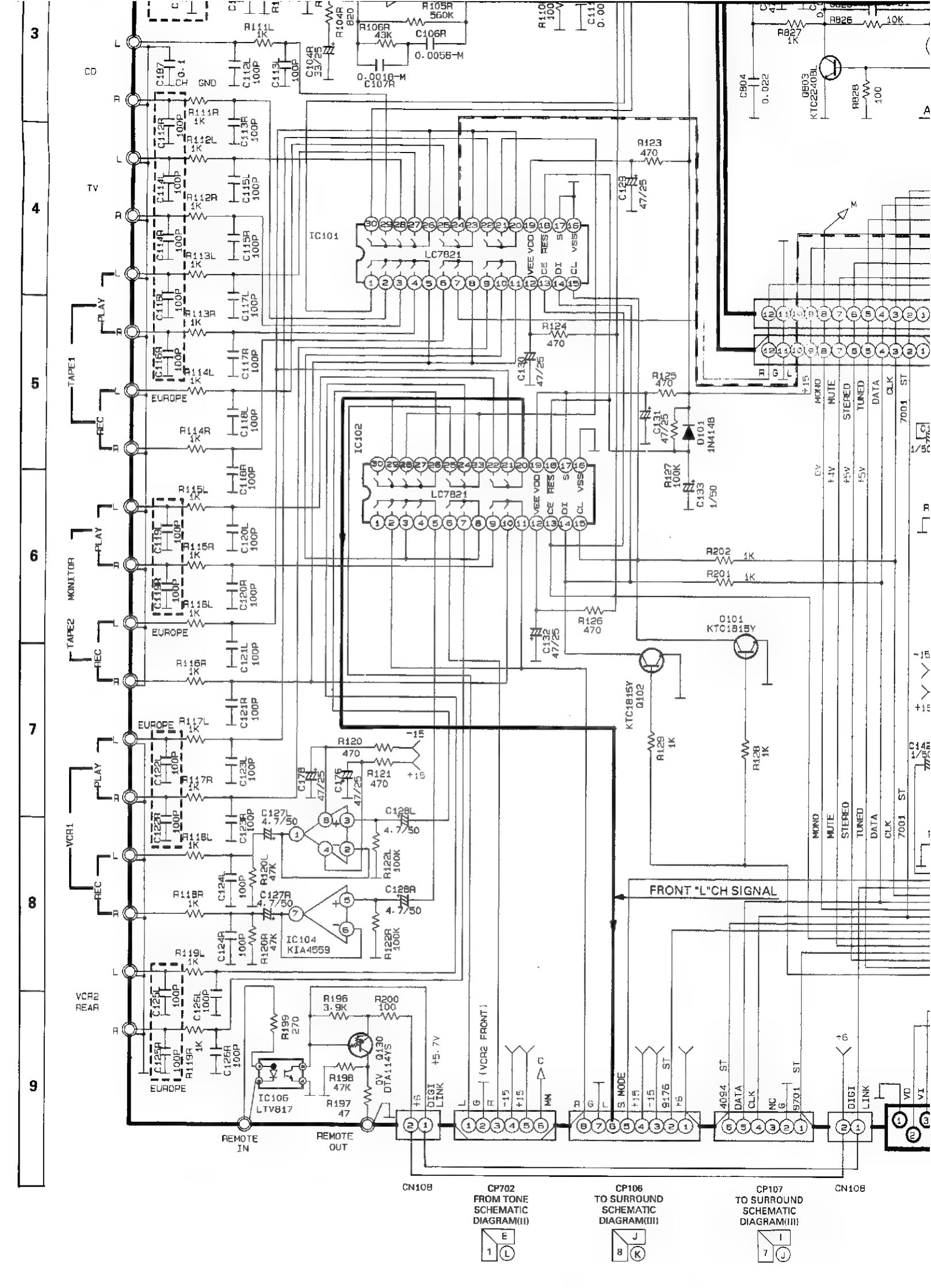


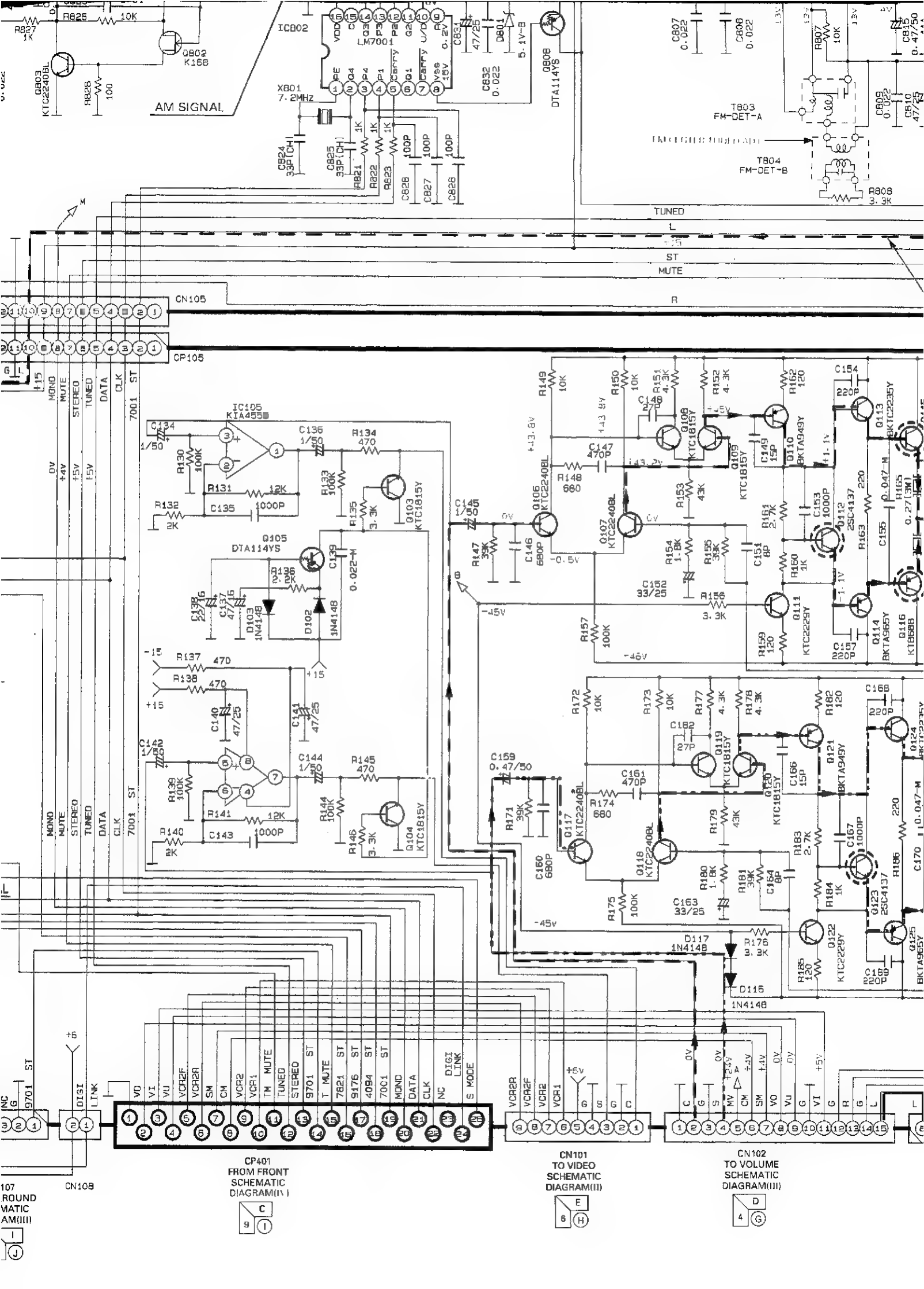

TUNER(PCB10)
ANTENNA
FM SIGNAL
AM SIGNAL
FE1
FM-FRONT-END
FTH3-505H
(FE407-G60)
Q801
KTC1923Y
CF801
10.7M
CF802
10.7M
CF803
10.7M
CF804
T801
AM-ANT
T802
AM-OSC
T803
FM-DET-A
T804
FM-DET-B
T805
AM-IFT
IC802
LM7001
LA1265
OSC
MIX
AGC
AM-IF
S-METER
DET
FM-IF
MD
LED DRIVER
POST AMP
VCC
GND
X801
7.2MHz
Q802
K168
Q803
KTC2240BL
Q806
DTA114YS
VD1
KV36Z
VD2
KV36Z
VR801
20K
VR802
50K
TUNED
L
+15
ST
MUTE
R
CN105
CP105
IC105
KIA4559
Q105
DTA114YS
Q106
KTC1815Y
Q107
KTC2240BL
Q108
KTC1815Y
Q109
KTC1815Y
Q110
BKTA949Y
Q111
KTC2229Y
Q112
2SC4137
Q113
BKTC2235Y
Q114
BKTA965Y
Q115
D748
Q116
KTB688
D102
1N4148
D103
1N4148
D104
1N41
-TUNER-
EUROPE
VOLTAGE:
MARK
FM 98.1M
MONO
MUTE
STEREO
TUNED
DATA
CLK
ST
7001
0V
+4V
+5V
-5V
-15
-45V
-46V

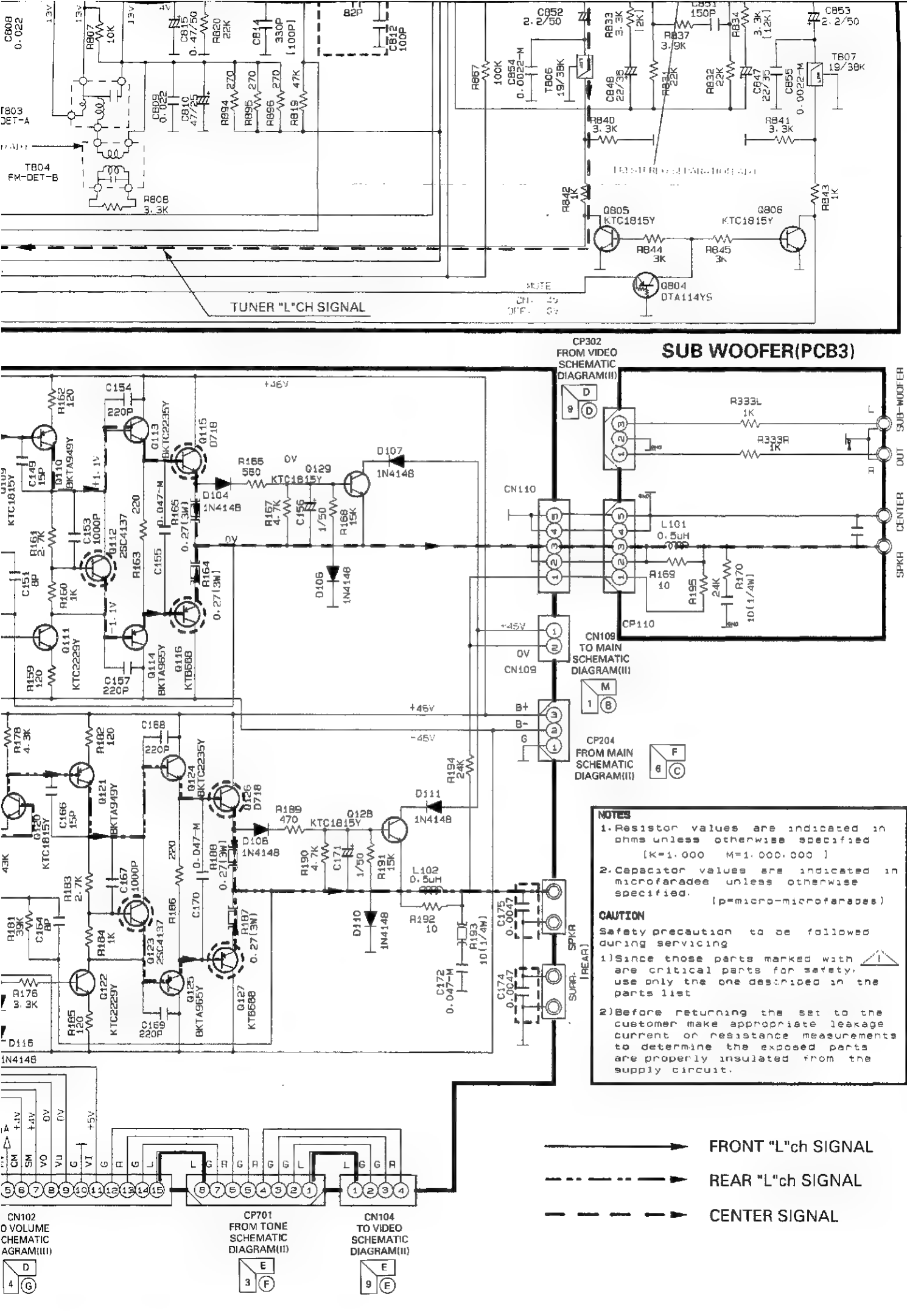
I	J	K	L	M


-TUNER-
EUROPE VERSION
VOLTAGE MARK
FM 98.1MHz NO SIGNAL
IC801
IC803
HA12016
EUROPE
TUNER "L"CH SIGNAL
T803
DET-A
T804
FM-DET-B
T807
19/38K
Q805
KTC1815Y
Q804
DTA114YS

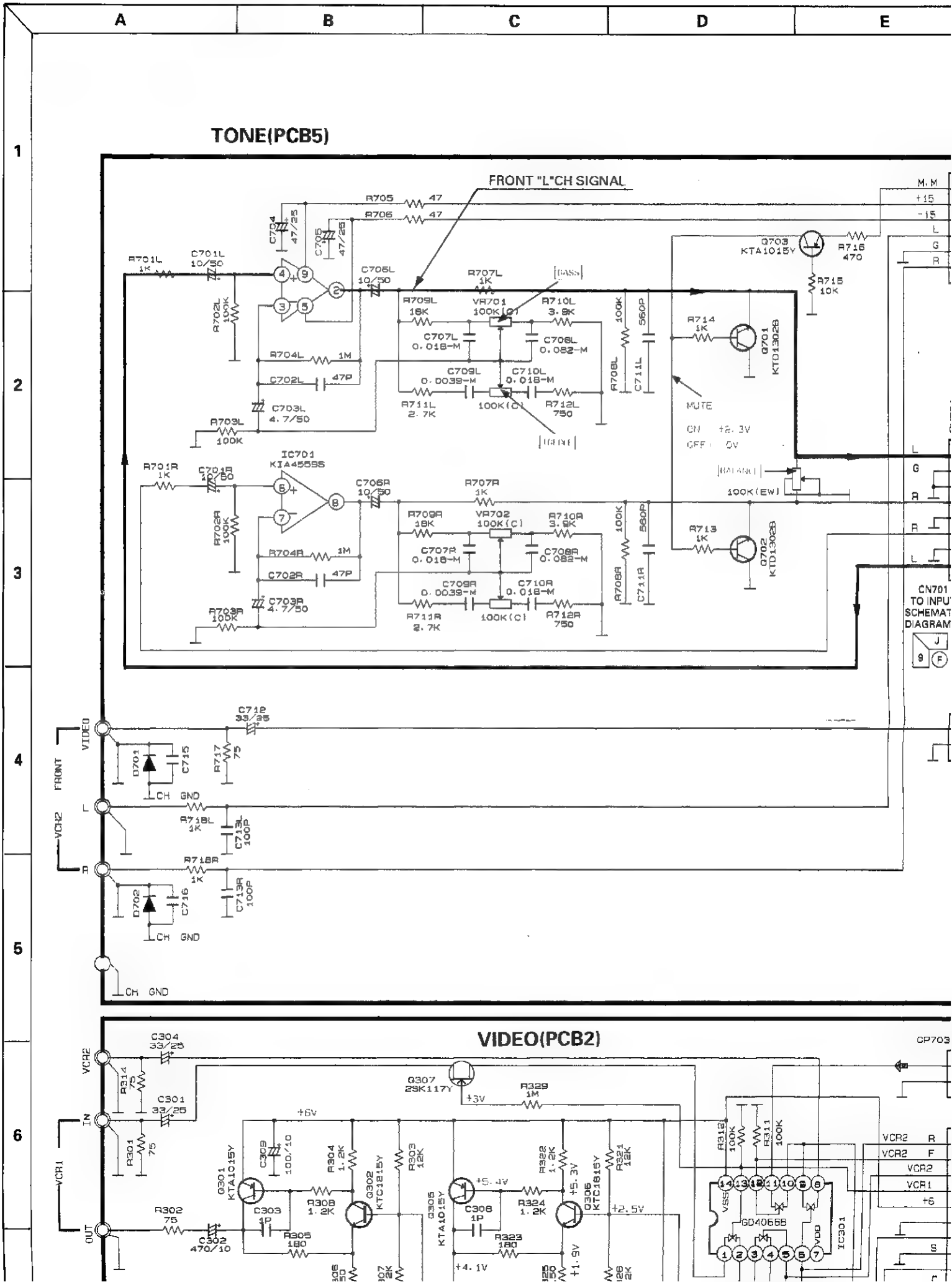

SUB WOOFER(PCB3)
CP302
FROM VIDEO
SCHEMATIC
DIAGRAM(II)
CN110
CP110
CN109
TO MAIN
SCHEMATIC
DIAGRAM(III)
L101
0.5uH
SUB-WOOFER OUT
CENTER
SPKR
+46V
0V
B+
B-


IC101
LC7821
IC102
LC7821
IC104
KIA4559
IC106
LTV817
Q101
KTC1815Y
Q102
KTC1815Y
Q130
DTA114YS
Q803
KTC2240BL
D101
1N4148
FRONT "L"CH SIGNAL
REMOTE IN
REMOTE OUT
CN108
CP702
FROM TONE
SCHEMATIC
DIAGRAM(II)
CP106
TO SURROUND
SCHEMATIC
DIAGRAM(III)
CP107
TO SURROUND
SCHEMATIC
DIAGRAM(III)
CN108
CD
TV
TAPE1
PLAY
REC
TAPE2
MONITOR
VCR1
VCR2
EUROPE
GND
MONO
MUTE
STEREO
TUNED
DATA
CLK
7001 ST


AM SIGNAL
IC802
LM7001
XB01
7.2MHz
TB03
FM-DET-A
TB04
FM-DET-B
TUNED
L
ST
MUTE
R
CN105
CP105
IC105
KIA4558
Q105
DTA114YS
CP401
FROM FRONT
SCHEMATIC
DIAGRAM(II)
CN101
TO VIDEO
SCHEMATIC
DIAGRAM(III)
CN102
TO VOLUME
SCHEMATIC
DIAGRAM(III)
CN108

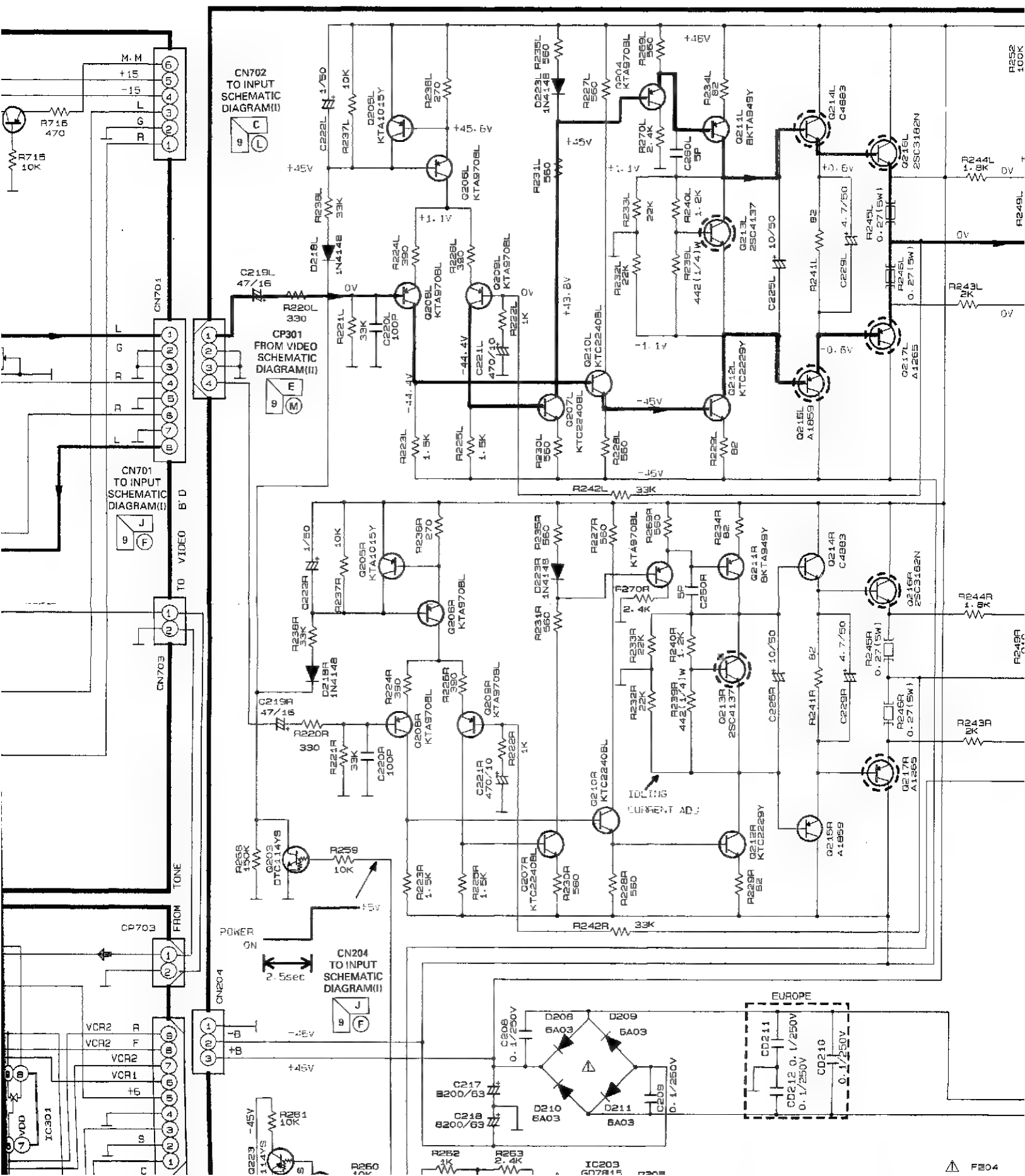

SUB WOOFER(PCB3)
TUNER "L"CH SIGNAL
CP302
FROM VIDEO
SCHEMATIC
DIAGRAM(II)
CN110
CP110
CN109
TO MAIN
SCHEMATIC
DIAGRAM(II)
CN109
CP204
FROM MAIN
SCHEMATIC
DIAGRAM(II)
SUB-WOOFER
CENTER
SPKR
SUPER.
[REAR]
CN102
O VOLUME
CHEMATIC
AGRAM(III)
CP701
FROM TONE
SCHEMATIC
DIAGRAM(II)
CN104
TO VIDEO
SCHEMATIC
DIAGRAM(II)
FRONT "L"ch SIGNAL
REAR "L"ch SIGNAL
CENTER SIGNAL
NOTES
1. Resistor values are indicated in ohms unless otherwise specified
[K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfaradee unless otherwise specified.
[p=micro-microfarades]
CAUTION
Safety precaution to be followed during servicing
1)Since those parts marked with are critical parts for safety, use only the one destriped in the parts list
2)Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAMS II



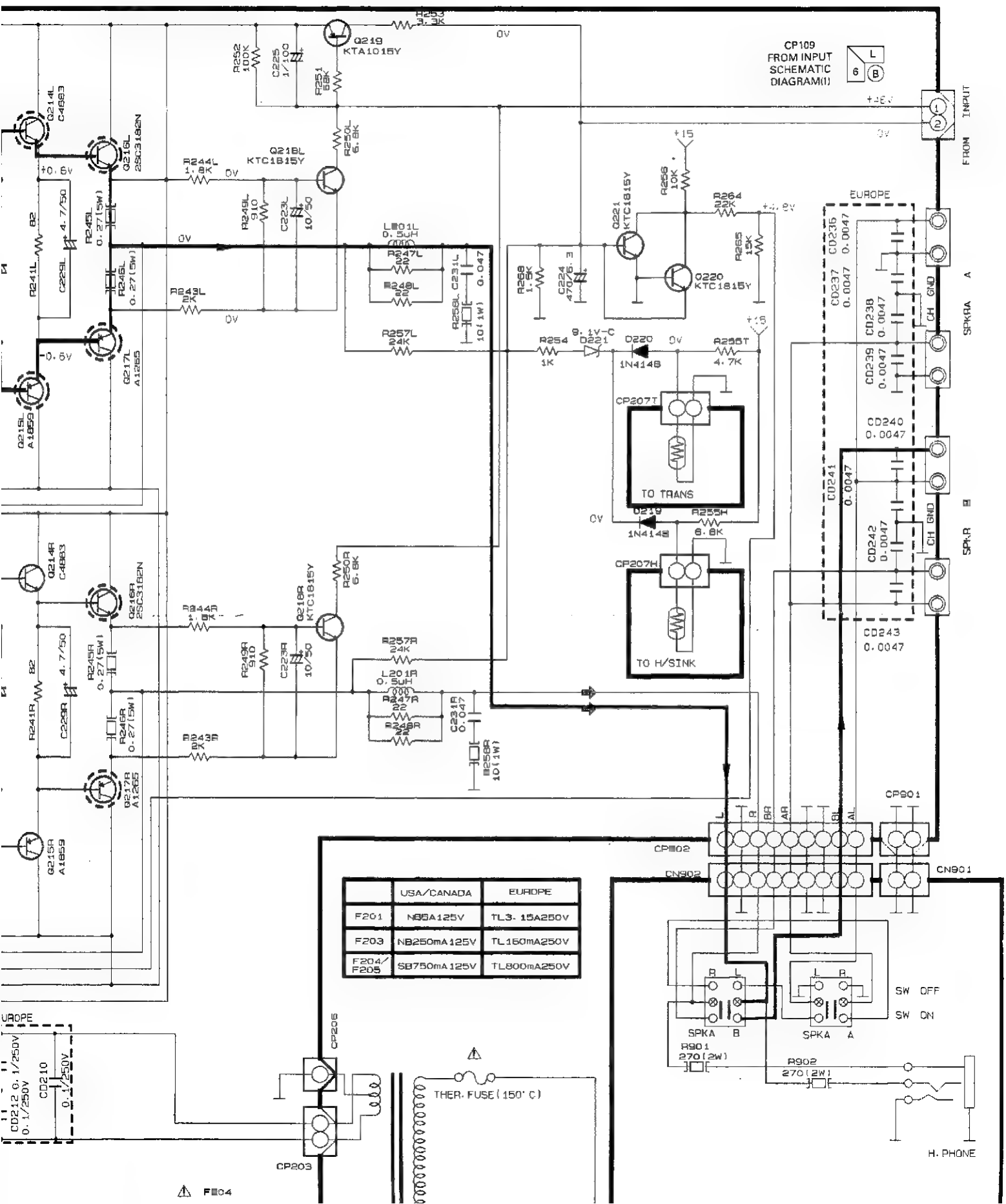
E	F	G	H	I	

MAIN(PCB1)



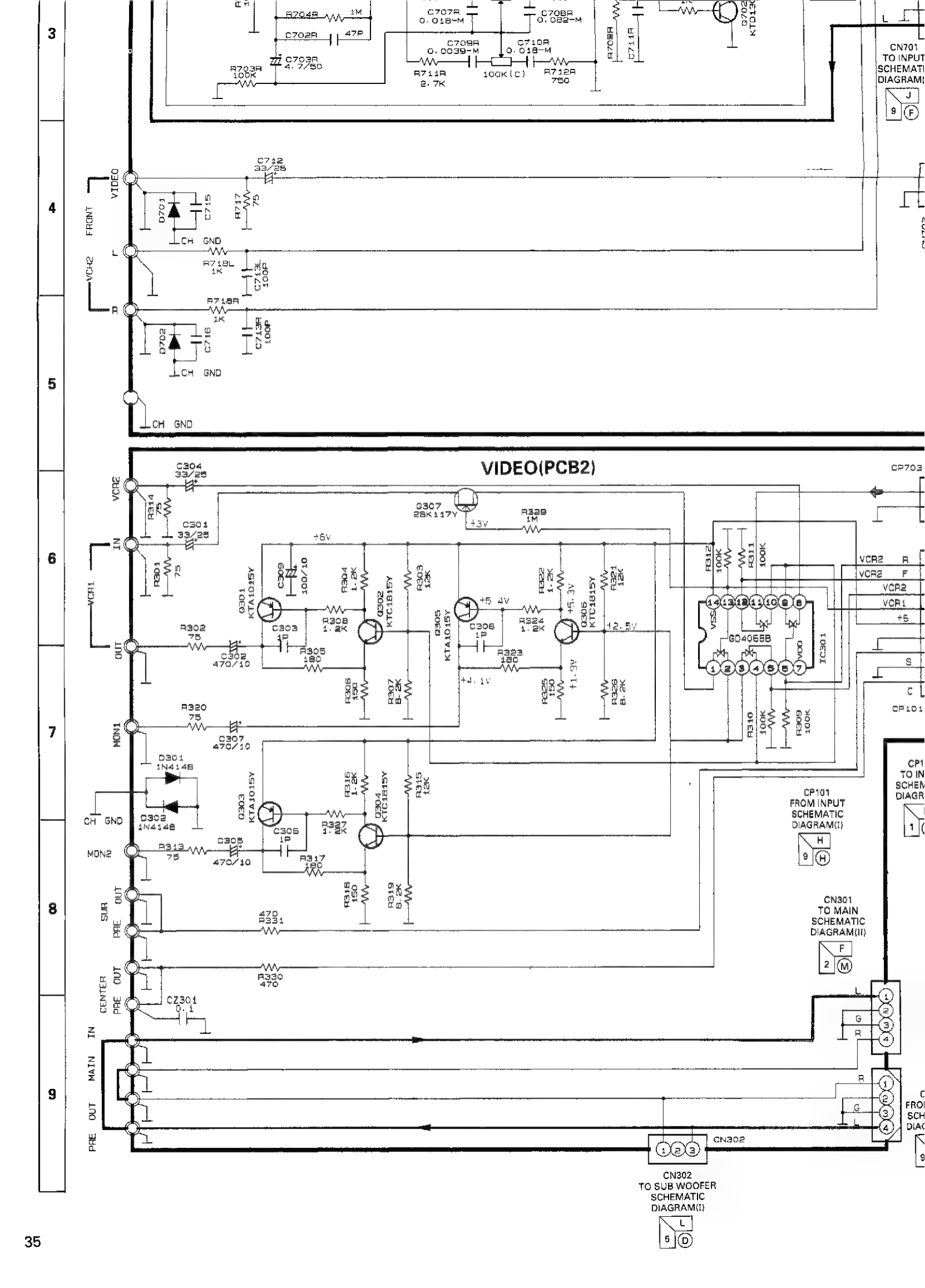
I	J	K	L	M

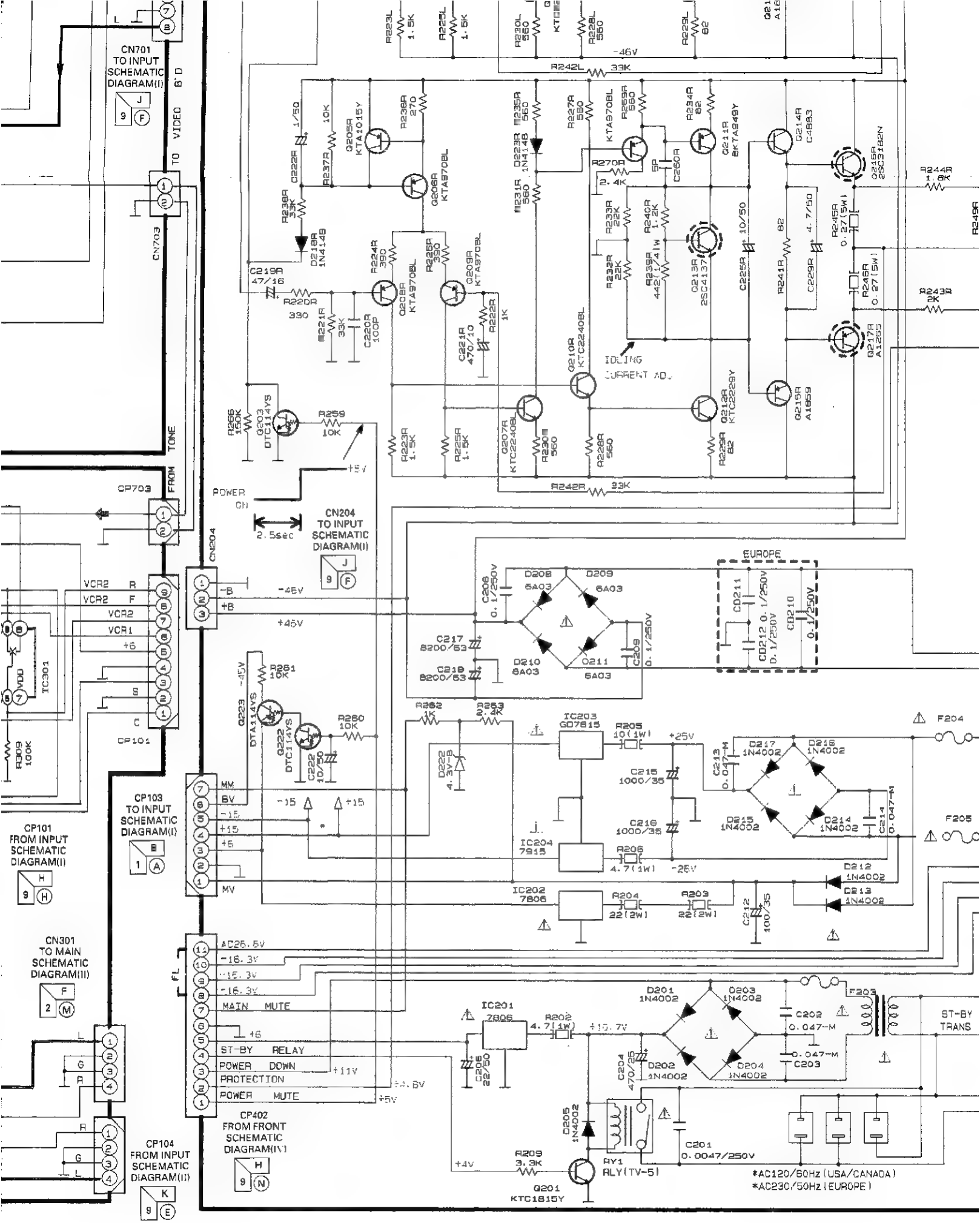
MAIN(PCB1)

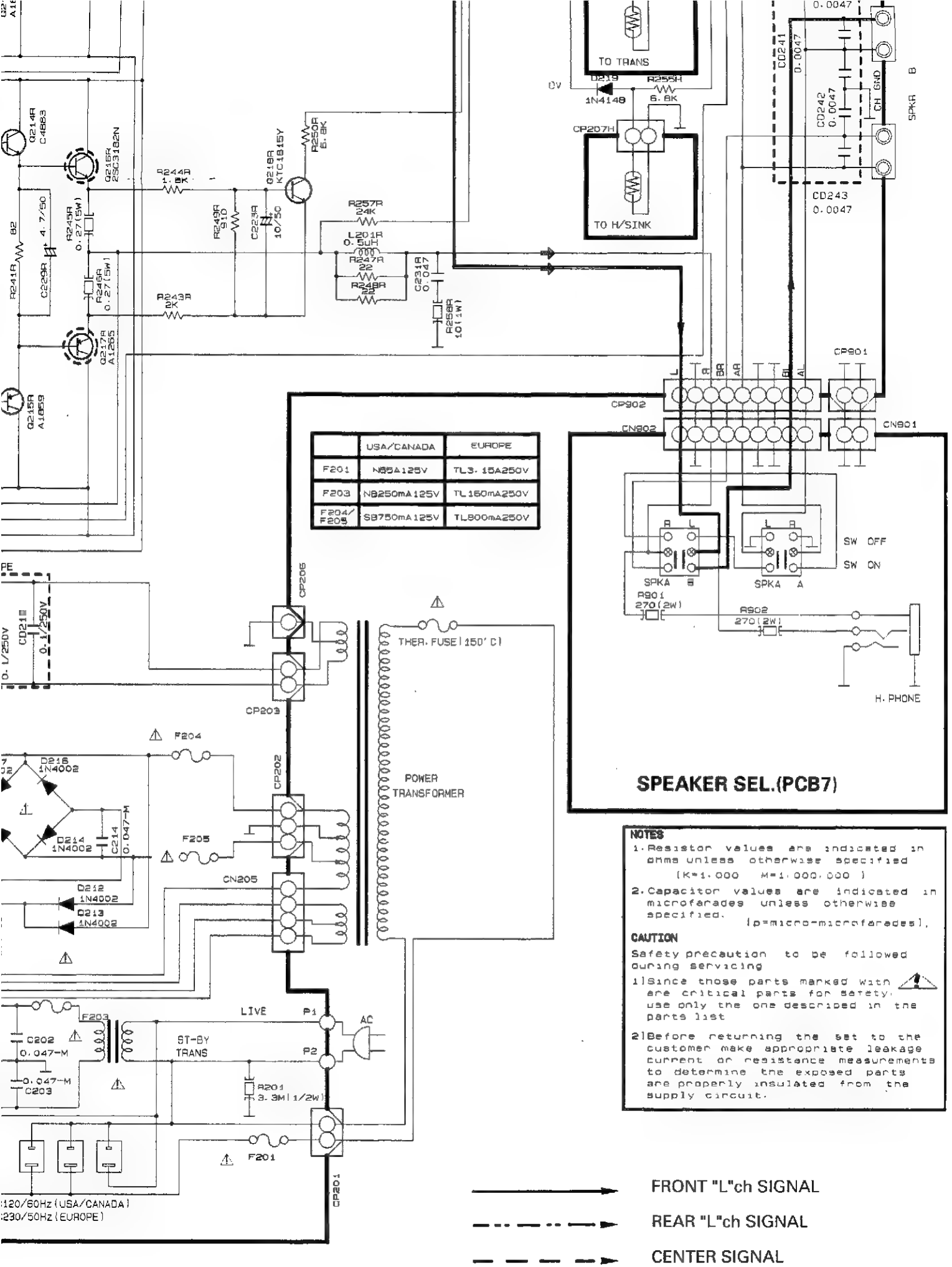


	USA/CANADA	EUROPE
F201	N65A125V	TL3- 15A250V
F203	NB250mA125V	TL160mA250V
F204/ F205	SB750mA125V	TL800mA250V

⚠ F■04


VIDEO(PCB2)
CN701
TO INPUT
SCHEMATI
DIAGRAM(
CN301
TO MAIN
SCHEMATIC
DIAGRAM(II)
CN302
TO SUB WOOFER
SCHEMATIC
DIAGRAM(I)
CP101
FROM INPUT
SCHEMATIC
DIAGRAM(I)
CN302
VIDEO
FRONT
VCR2
VCR1
MON1
MON2
SUB WOOFER PRE OUT
CENTER PRE OUT
MAIN IN
MAIN OUT
PRE OUT
CH GND
C712 33/25
C304 33/25
C301 33/25
C302 470/10
C307 470/10
C308 470/10
CZ301 0.1
Q307 2SK117Y
Q301 KTA1015Y
Q302 KTC1815Y
Q303 KTA1015Y
Q304 KTC1815Y
Q305 KTA1015Y
Q306 KTC1815Y
IC301 GD4066B
D301 1N4148
D302 1N4148
R329 1M
R330 470
R331 470
+8V
+3V
+5.4V
+5.3V
12.5V
+4.1V
+1.9V


CN701
TO INPUT
SCHEMATIC
DIAGRAM(I)
J
9
F
TO VIDEO B'D
CN703
FROM TONE
CP703
CN204
TO INPUT
SCHEMATIC
DIAGRAM(I)
POWER
ON
2.5sec
-46V
+46V
+5V
+6
-15
+15
+25V
-25V
+11V
+10.7V
+4V
IDLING
CURRENT ADJ.
EUROPE
VCR2 R
VCR2 F
VCR2
VCR1
S
C
IC301
CP101
CP103
TO INPUT
SCHEMATIC
DIAGRAM(I)
B
1
A
CP101
FROM INPUT
SCHEMATIC
DIAGRAM(I)
H
9
H
CN301
TO MAIN
SCHEMATIC
DIAGRAM(II)
F
2
M
CP104
FROM INPUT
SCHEMATIC
DIAGRAM(II)
K
9
E
CP402
FROM FRONT
SCHEMATIC
DIAGRAM(IV)
H
9
N
AC26.5V
-16.3V
-15.3V
-16.3V
MAIN MUTE
ST-BY RELAY
POWER DOWN
PROTECTION
POWER MUTE
IC201
7805
IC202
7806
IC203
G07815
IC204
7915
RY1
RLY(TV-5)
Q201
KTC1815Y
ST-BY
TRANS
*AC120/60Hz(USA/CANADA)
*AC230/50Hz(EUROPE)



	USA/CANADA	EUROPE
F201	N85A125V	TL3.15A250V
F203	N8250mA125V	TL160mA250V
F204/ F205	SB750mA125V	TL800mA250V

NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades),

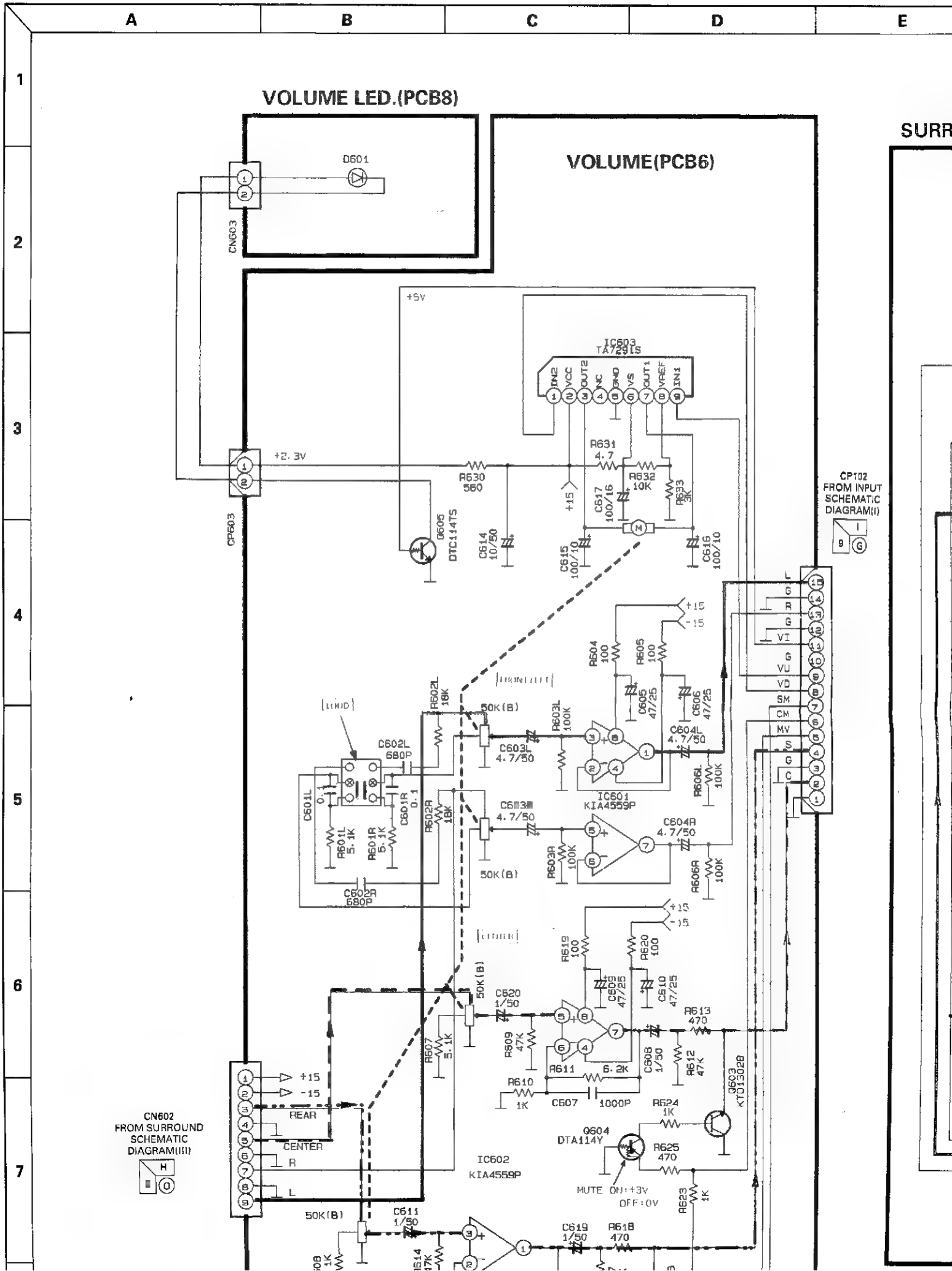
CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list

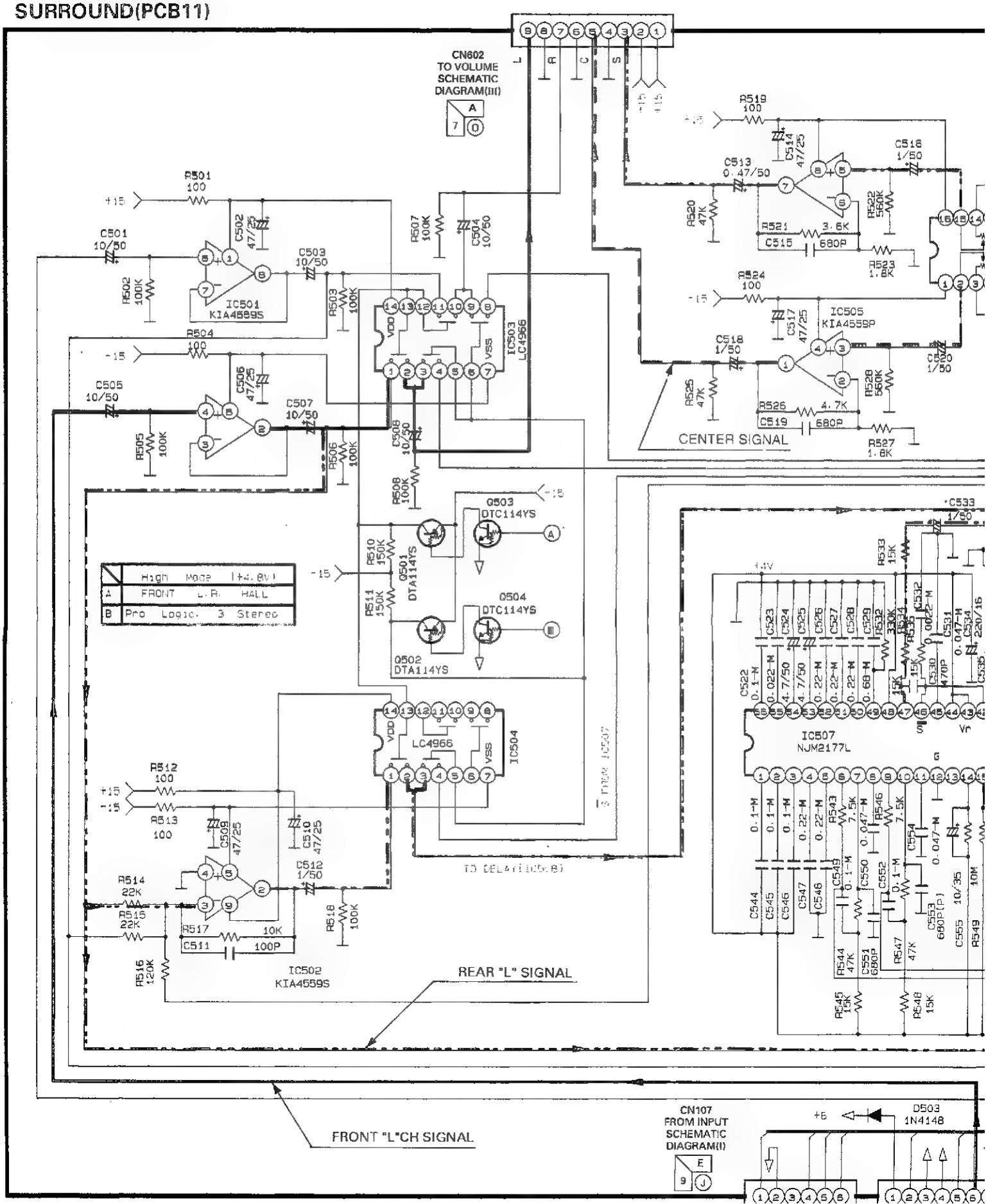
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAMS III

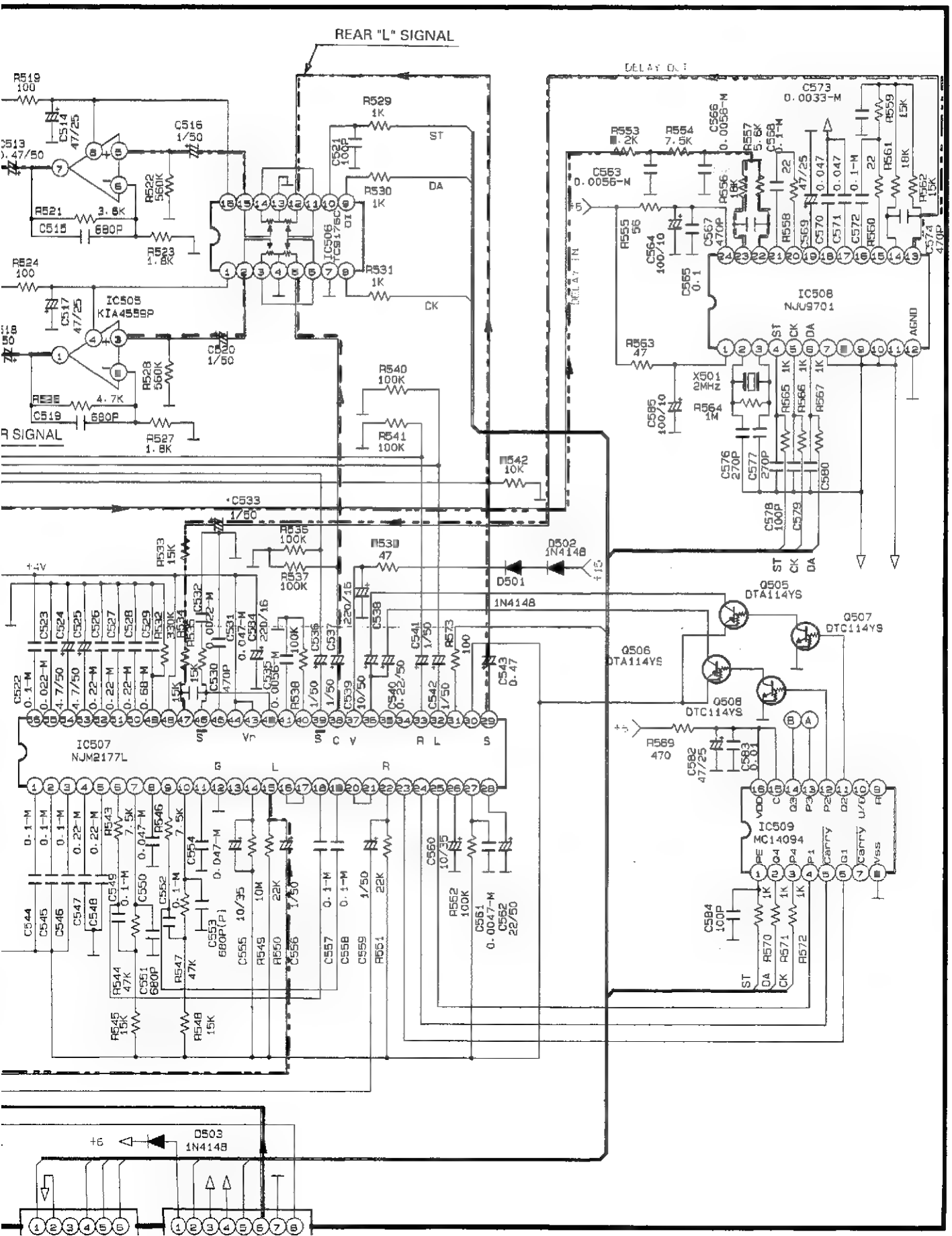


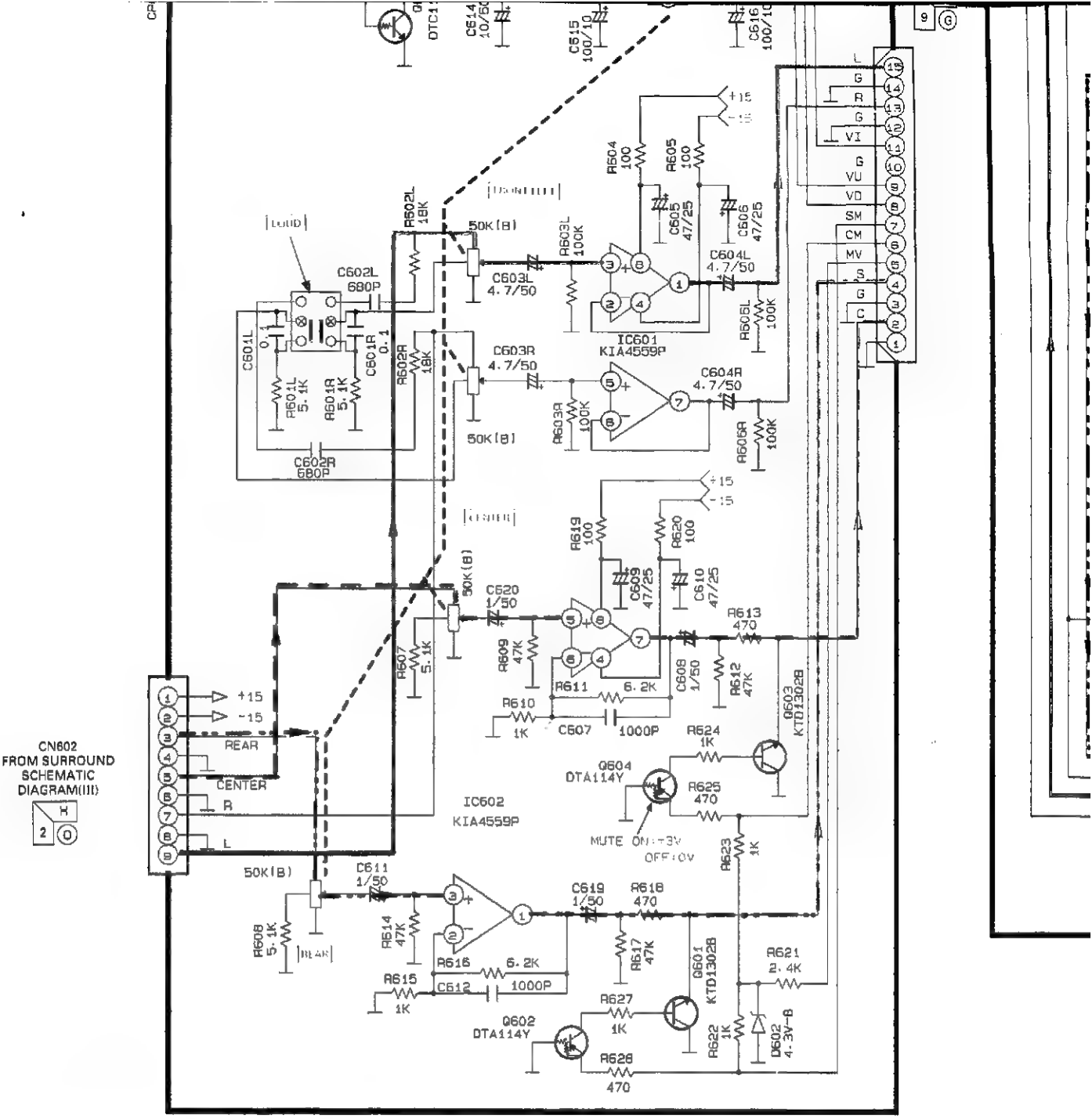
E	F	G	H	I	J

SURROUND(PCB11)



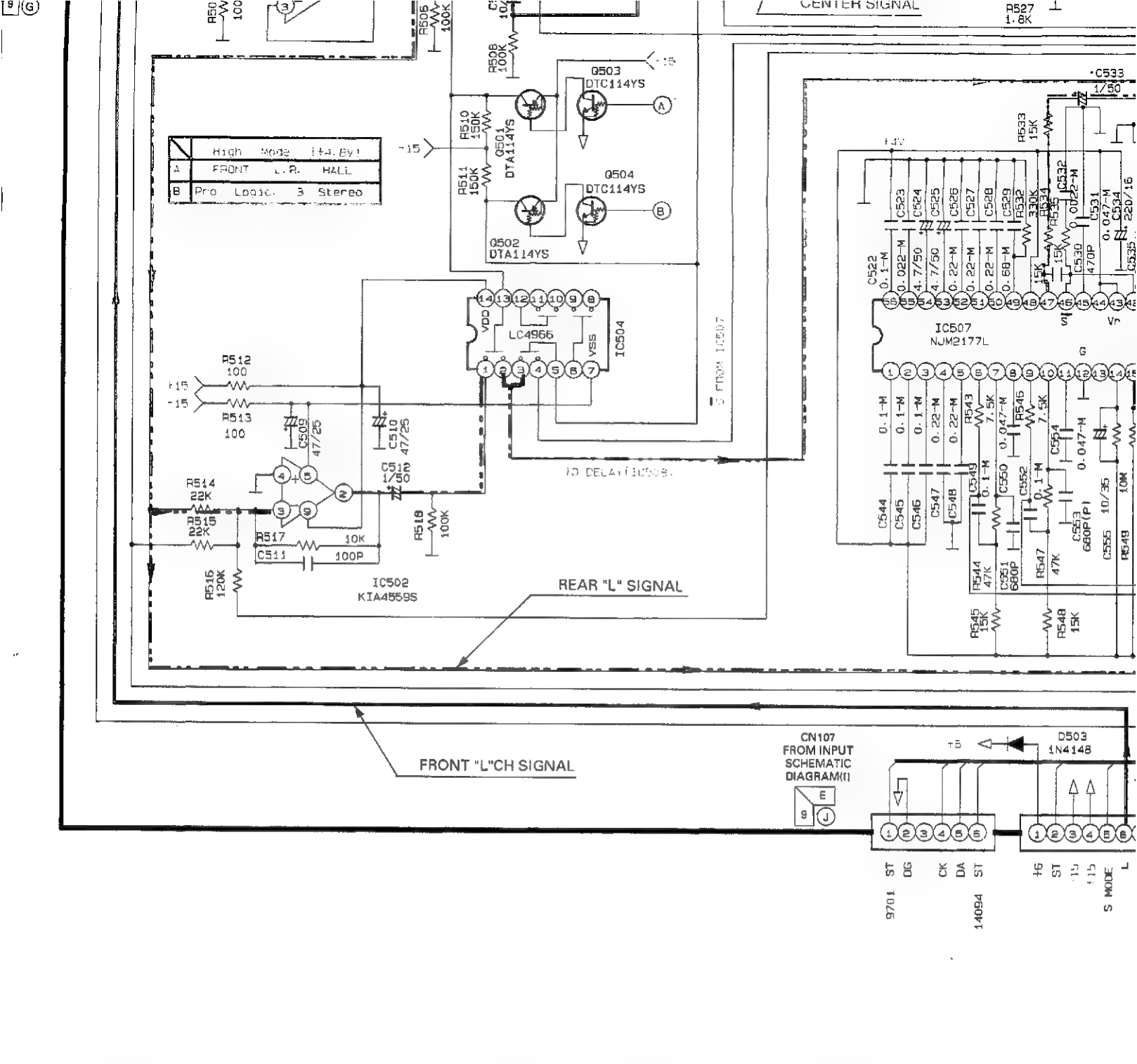
I	J	K	L	M


REAR "L" SIGNAL
IC505
KIA4558P
IC506
TC9175P
IC507
NJM2177L
IC508
NJU9701
IC509
MC14094
X501
2MHz
D501
1N4148
D502
1N4148
D503
1N4148
Q505
DTA114YS
Q506
DTA114YS
Q507
DTC114YS
Q508
DTC114YS

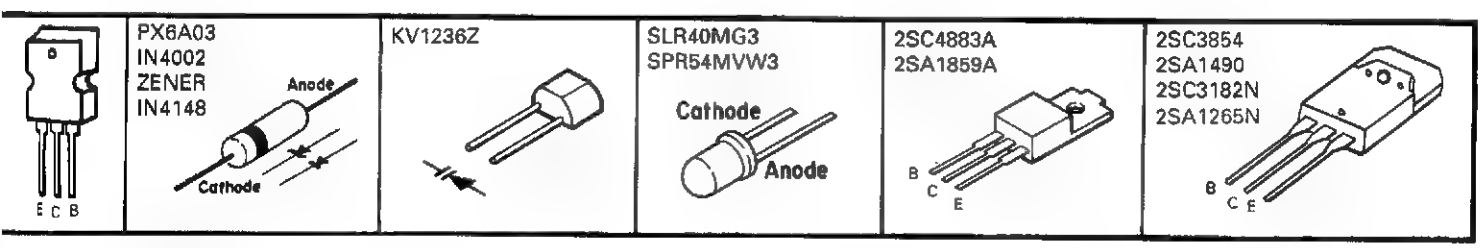


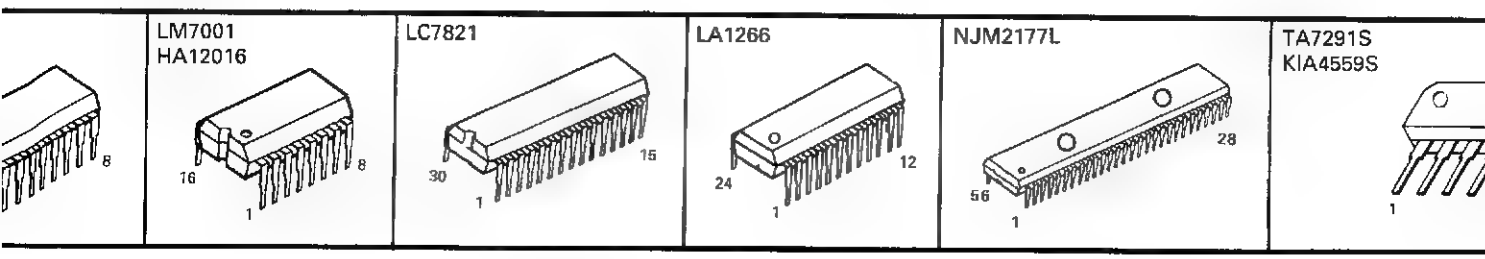
PIN CONNECTION OF TRANSISTORS, DIODES AND ICS.

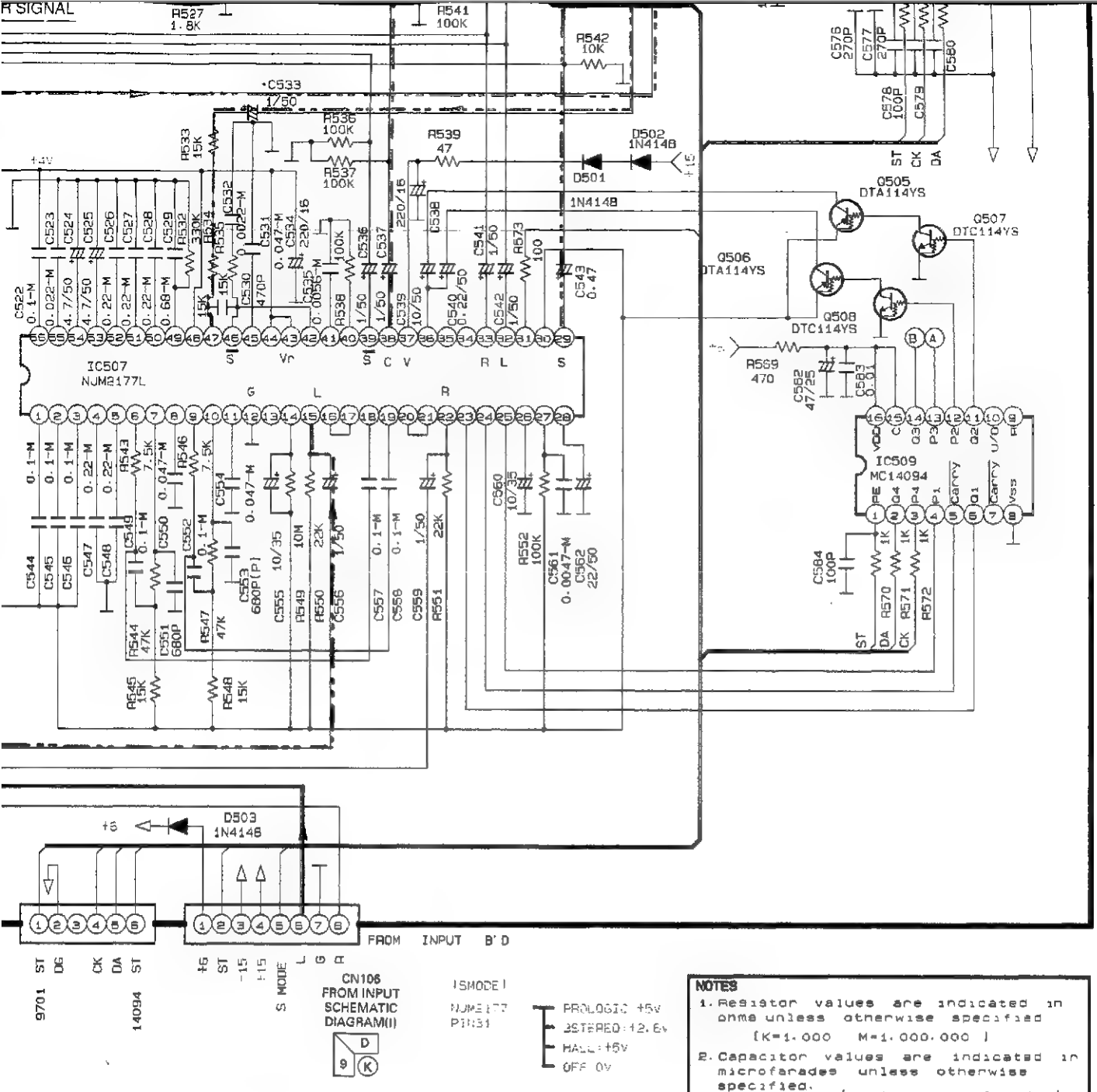
KTA949 KTA965 KTC2229 KTC2235 B C E	KTA970 KTC1923 KTA1015 KTC2240 KTD1302 KTC1815Y E C B	DTA114YS DTC114YS DTC114TS B C E	2SK168 2SK117 D S G	2SC4137 E C B	PX6A03 IN4002 ZENER IN4148
GL7806 GL7815 IN GND OUT	GL7915 GND IN OUT	LC4966 14 1 7	KIA4559P KIA6259P 8 1 4	TC9176 MC14094 16 1 8	LM70 HA12 16



	High Mode (14.8V)
A	FRONT L.R. HALL
B	Pro Logic 3 Stereo







NOTES

1. Resistor values are indicated in ohms unless otherwise specified
   (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified.
   (p=micro-microfarades)

CAUTION

Safety precaution to be followed during servicing

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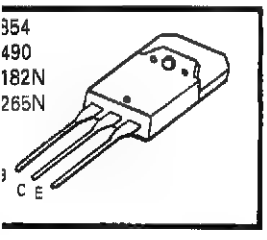
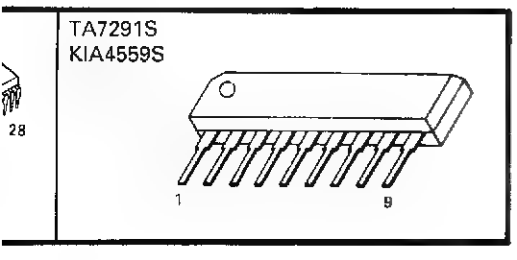
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.



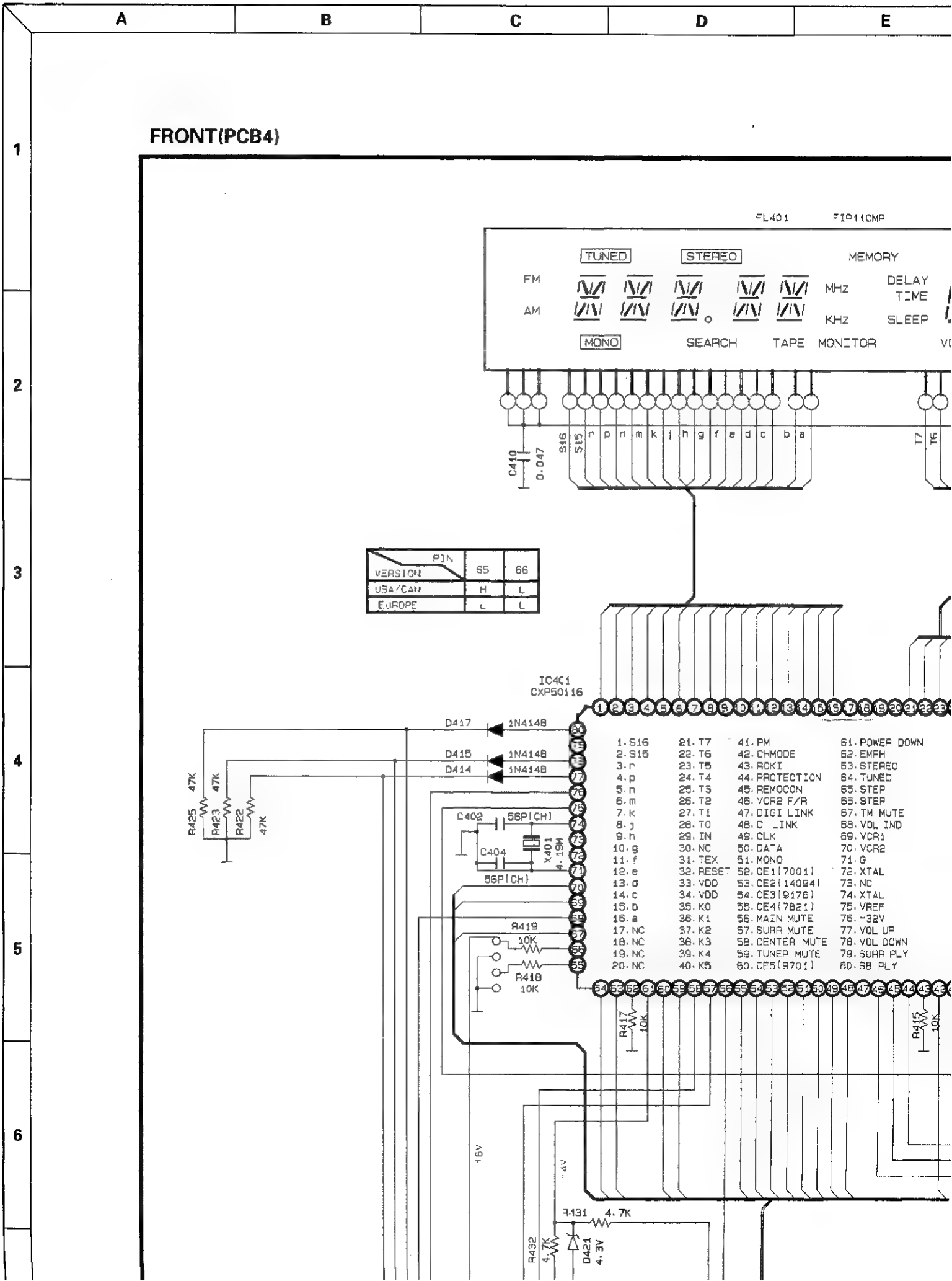


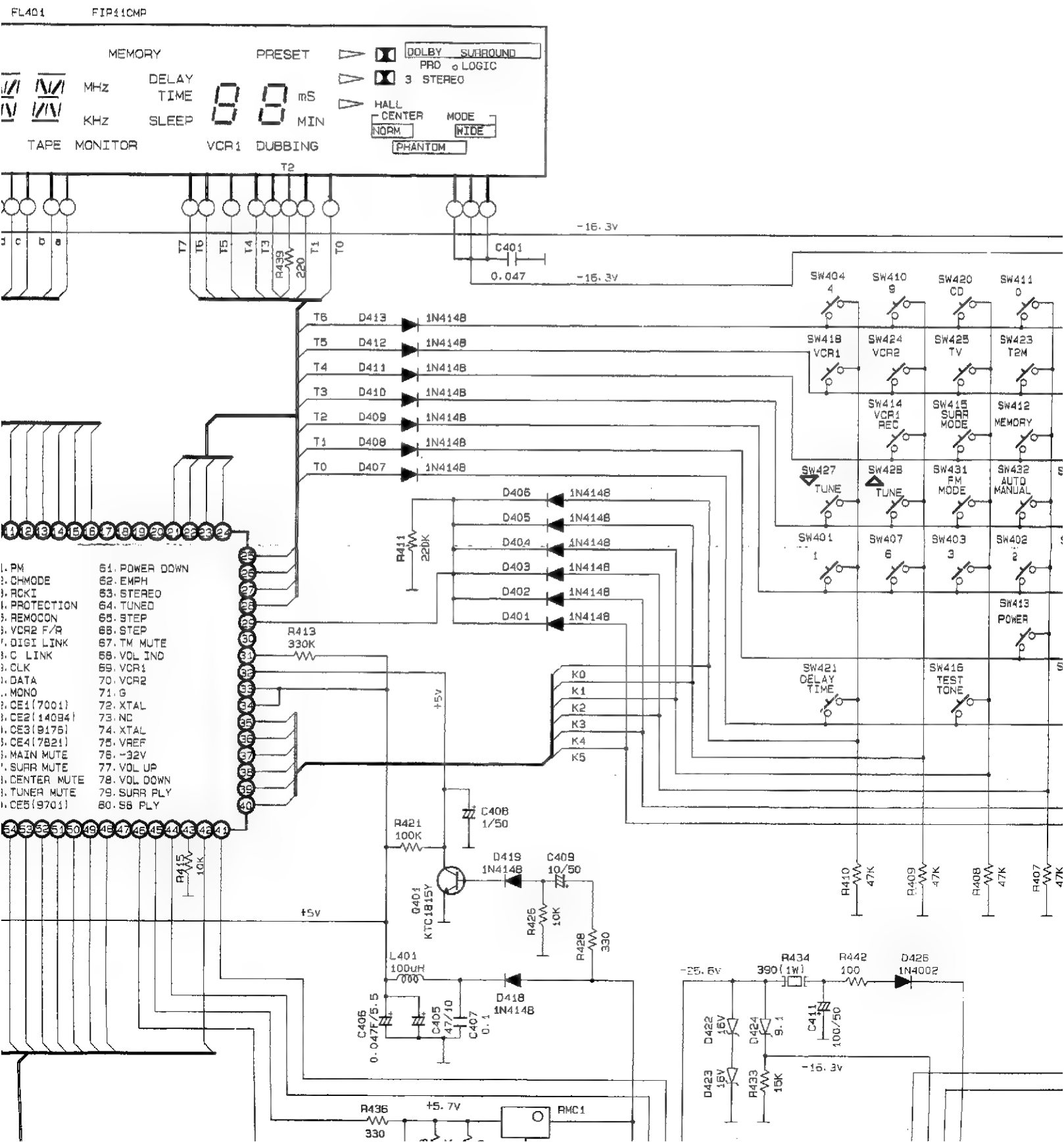
FRONT "L"ch SIGNAL

REAR "L"ch SIGNAL

CENTER SIGNAL

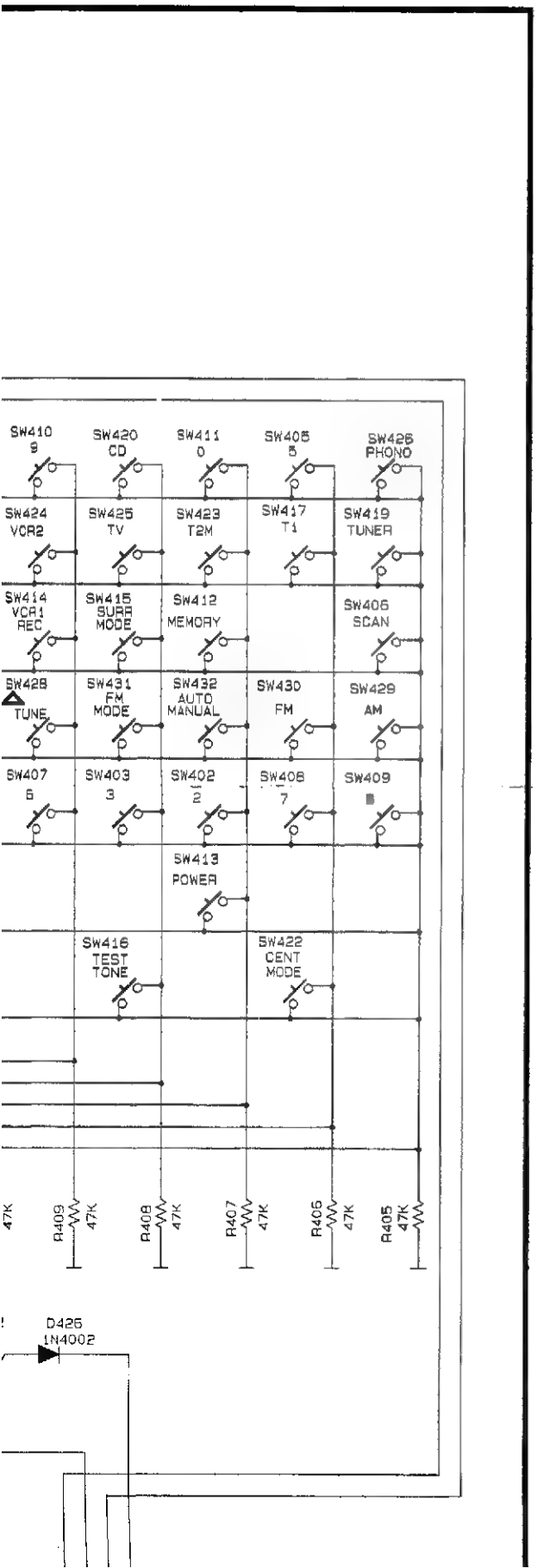
SCHEMATIC DIAGRAM IV

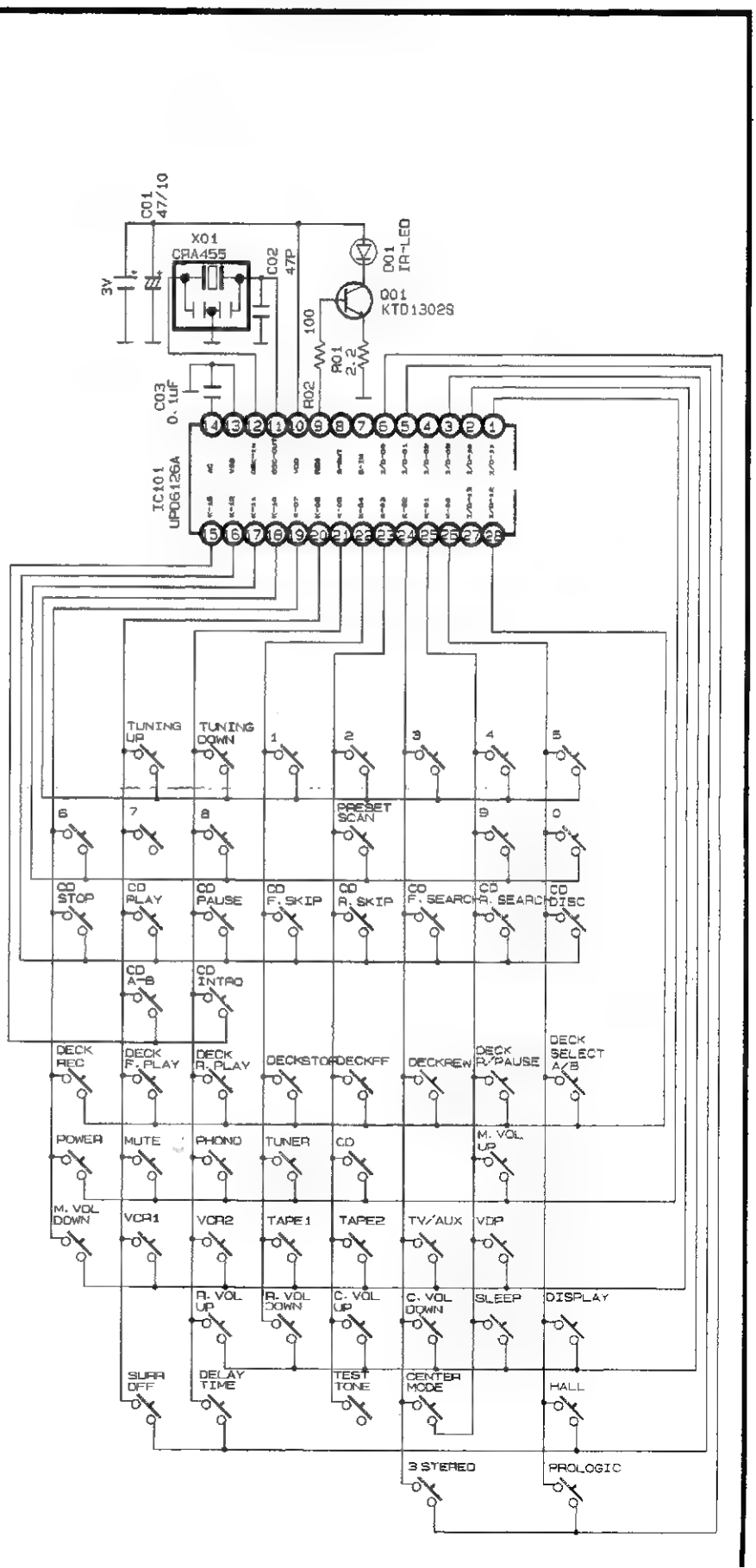


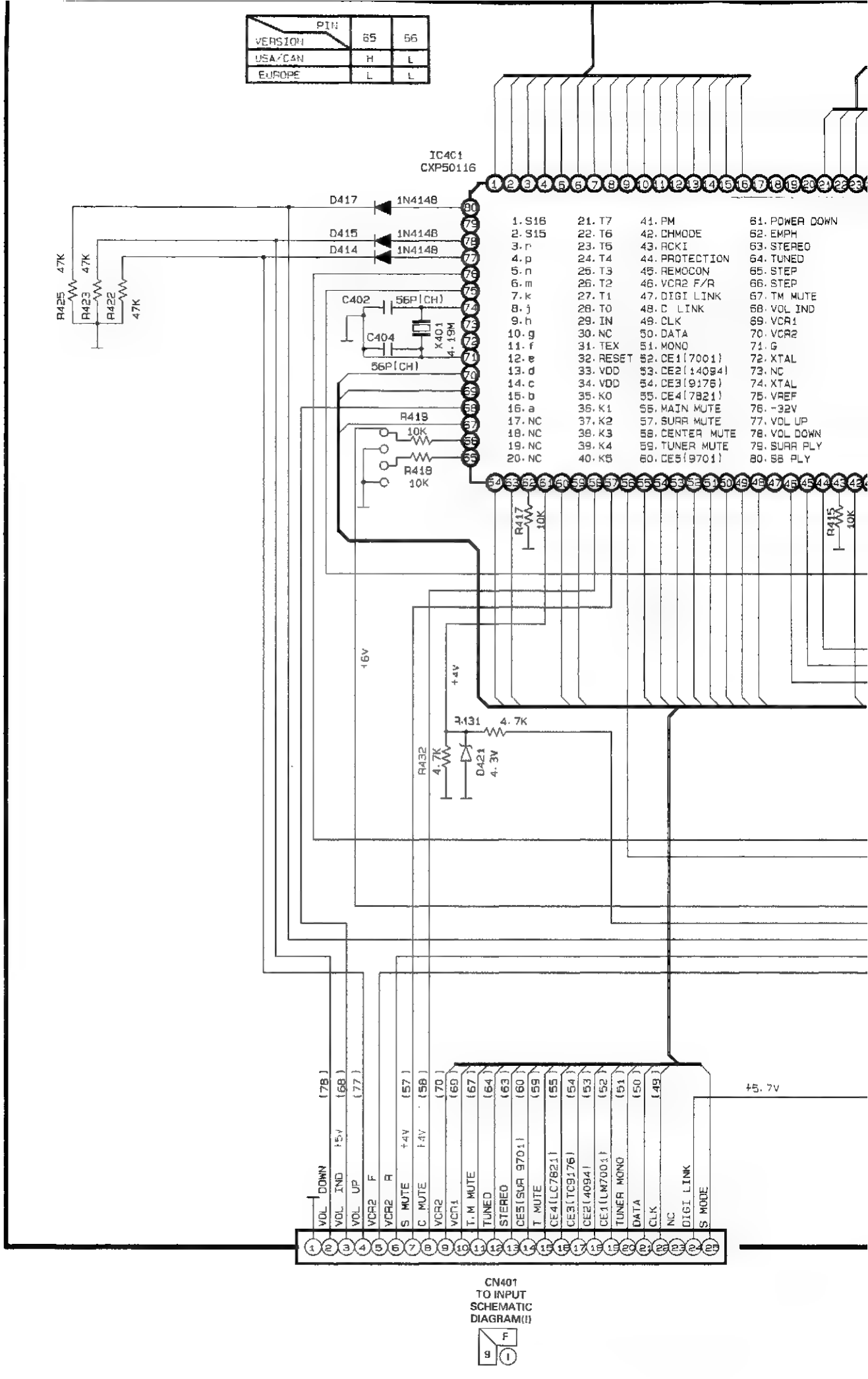

FL401 FIP11CMP
MEMORY
PRESET
DOLBY SURROUND
PRO LOGIC
3 STEREO
DELAY TIME
MHz
KHz
SLEEP
mS
MIN
HALL
CENTER
MODE
NORM
WIDE
PHANTOM
TAPE MONITOR
VCR1 DUBBING
T2
T7 T6 T5 T4 T3 T1 T0
R439 220
C401 0.047
-16.3v
SW404 4
SW410 9
SW420 CD
SW411 0
SW418 VCR1
SW424 VCR2
SW425 TV
SW423 T2M
SW414 VCR1 REC
SW415 SURR MODE
SW412 MEMORY
SW427 TUNE
SW428 TUNE
SW431 FM MODE
SW432 AUTO MANUAL
SW401 1
SW407 6
SW403 3
SW402 2
SW413 POWER
SW421 DELAY TIME
SW416 TEST TONE
D413 1N4148
D412 1N4148
D411 1N4148
D410 1N4148
D409 1N4148
D408 1N4148
D407 1N4148
D406 1N4148
D405 1N4148
D404 1N4148
D403 1N4148
D402 1N4148
D401 1N4148
R411 220K
R413 330K
K0
K1
K2
K3
K4
K5
+5v
C408 1/50
R421 100K
D419 1N4148
C409 10/50
Q401 KTC1815Y
R425 10K
R428 330
R415 10K
L401 100uH
D418 1N4148
C406 0.047F/5.5
C405 47/10
C407 0.1
R410 47K
R409 47K
R408 47K
R407 47K
-25.6v
R434 390(1W)
R442 100
D426 1N4002
D422 16V
D424 9.1
C411 100/50
D423 16V
R433 15K
-16.3v
R436 330
+5.7v
RMC1
1. PM
2. CHMODE
3. RCKI
4. PROTECTION
5. REMOCON
6. VCR2 F/R
7. DIGI LINK
8. C LINK
9. CLK
10. DATA
11. MONO
12. CE1(7001)
13. CE2(14094)
14. CE3(9176)
15. CE4(7821)
16. MAIN MUTE
17. SURR MUTE
18. CENTER MUTE
19. TUNER MUTE
20. CE5(9701)
61. POWER DOWN
62. EMPH
63. STEREO
64. TUNED
65. STEP
66. STEP
67. TM MUTE
68. VOL IND
69. VCR1
70. VCR2
71. G
72. XTAL
73. NC
74. XTAL
75. VREF
76. -32V
77. VOL UP
78. VOL DOWN
79. SURR PLY
80. SB PLY

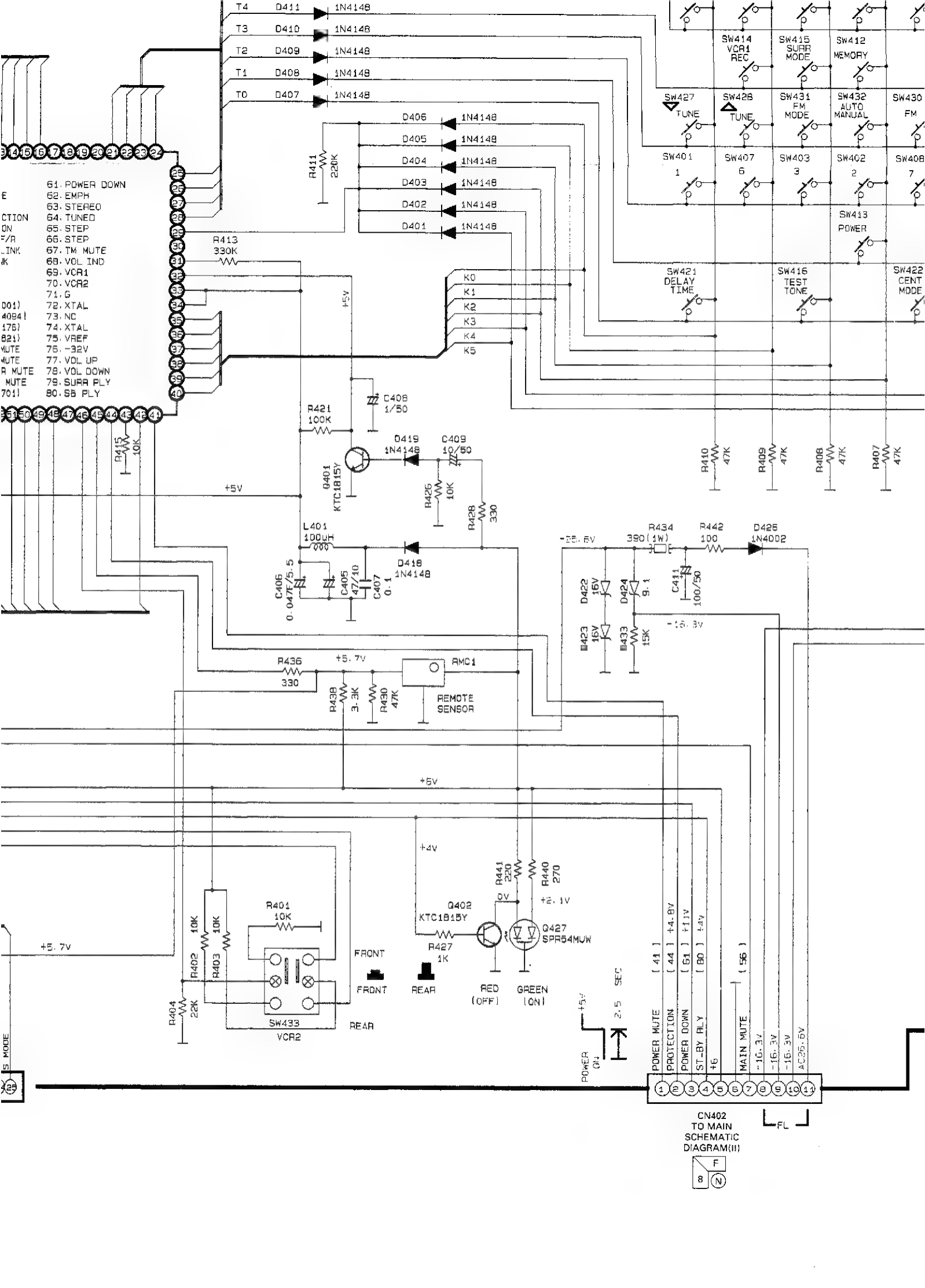
I	J	K	L	M

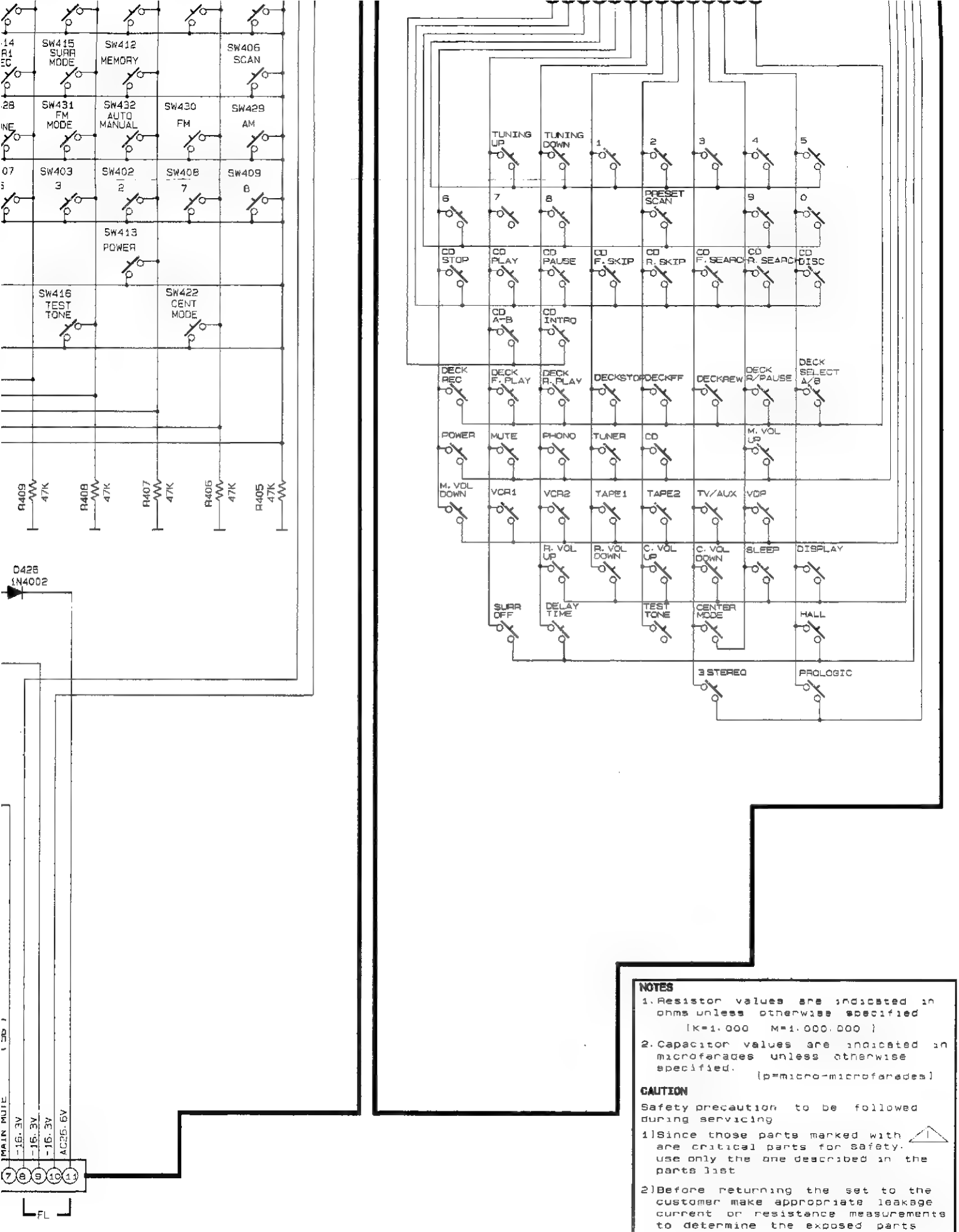
COMMANDER






PIN
VERSION
65
66
USA/CAN
H
L
EUROPE
L
L
IC401
CXP50116
1. S16
2. S15
3. n
4. p
5. o
6. m
7. k
8. j
9. h
10. g
11. f
12. e
13. d
14. c
15. b
16. a
17. NC
18. NC
19. NC
20. NC
21. T7
22. T6
23. T5
24. T4
25. T3
26. T2
27. T1
28. T0
29. IN
30. NC
31. TEX
32. RESET
33. VDD
34. VDD
35. K0
36. K1
37. K2
38. K3
39. K4
40. K5
41. PM
42. CHMODE
43. RCKI
44. PROTECTION
45. REMOCON
46. VCR2 F/R
47. DIGI LINK
48. C LINK
49. CLK
50. DATA
51. MONO
52. CE1(7001)
53. CE2(14094)
54. CE3(9176)
55. CE4(7821)
56. MAIN MUTE
57. SURR MUTE
58. CENTER MUTE
59. TUNER MUTE
60. CE5(9701)
61. POWER DOWN
62. EMPH
63. STEREO
64. TUNED
65. STEP
66. STEP
67. TM MUTE
68. VOL IND
69. VCR1
70. VCR2
71. G
72. XTAL
73. NC
74. XTAL
75. VREF
76. -32V
77. VOL UP
78. VOL DOWN
79. SURR PLY
80. SB PLY
D417 1N4148
D415 1N4148
D414 1N4148
R425 47K
R423 47K
R422 47K
C402 56P(CH)
C404 56P(CH)
X401 4.19M
R419 10K
R418 10K
R417 10K
R415 10K
+6V
+4V
R431 4.7K
R432 4.7K
D421 4.3V
+5.7V
VOL DOWN (78)
VOL IND +5V (68)
VOL UP (77)
VCR2 F
VCR2 R
S MUTE +4V (57)
C MUTE +4V (58)
VCR2 (70)
VCR1 (69)
T.M MUTE (67)
TUNED (64)
STEREO (63)
CE5(SUR 9701) (60)
T MUTE (59)
CE4(LC7821) (55)
CE3(TC9176) (54)
CE2(14094) (53)
CE1(LM7001) (52)
TUNER MUTE (51)
DATA (50)
CLK (49)
NC
DIGI LINK
S MODE
CN401
TO INPUT
SCHEMATIC
DIAGRAM(I)
9 F I


T4 D411 1N4148
T3 D410 1N4148
T2 D409 1N4148
T1 D408 1N4148
T0 D407 1N4148
D406 1N4148
D405 1N4148
D404 1N4148
D403 1N4148
D402 1N4148
D401 1N4148
R411 220K
R413 330K
SW414 VCR1 REC
SW415 SURR MODE
SW412 MEMORY
SW427 TUNE
SW428 TUNE
SW431 FM MODE
SW432 AUTO MANUAL
SW430 FM
SW401 1
SW407 6
SW403 3
SW402 2
SW408 7
SW413 POWER
SW421 DELAY TIME
SW416 TEST TONE
SW422 CENT MODE
K0
K1
K2
K3
K4
K5
61. POWER DOWN
62. EMPH
63. STEREO
64. TUNED
65. STEP
66. STEP
67. TM MUTE
68. VOL IND
69. VCR1
70. VCR2
71. G
72. XTAL
73. NC
74. XTAL
75. VREF
76. -32V
77. VOL UP
78. VOL DOWN
79. SURR PLY
80. SB PLY
+5V
C408 1/50
R421 100K
D419 1N4148
C409 10/50
Q401 KTC1815Y
R425 10K
R428 330
R415 10K
R410 47K
R409 47K
R408 47K
R407 47K
L401 100uH
D418 1N4148
C406 0.047F/5.5
C405 47/10
C407 0.1
-55.6V
R434 390(1W)
R442 100
D426 1N4002
D422 16V
D424 9.1
D423 16V
R433 15K
C411 100/50
-16.3V
R436 330
+5.7V
AMC1
R438 3.3K
R430 47K
REMOTE SENSOR
+5V
+4V
R441 220
R440 270
0V
+2.1V
Q402 KTC1815Y
Q427 SPR54MUW
R427 1K
R401 10K
R402 10K
R403 10K
R404 22K
SW433 VCR2
FRONT
REAR
FRONT
REAR
RED (OFF)
GREEN (ON)
+5V
2.5 SEC
POWER ON
POWER MUTE (41)
PROTECTION (44) +4.8V
POWER DOWN (61) +11V
ST-BY RLY (80) +4V
+6
MAIN MUTE (56)
-16.3V
-16.3V
-16.3V
AC25.6V
1 2 3 4 5 6 7 8 9 10 11
CN402 TO MAIN SCHEMATIC DIAGRAM(II)
FL
F
8
N



NOTES

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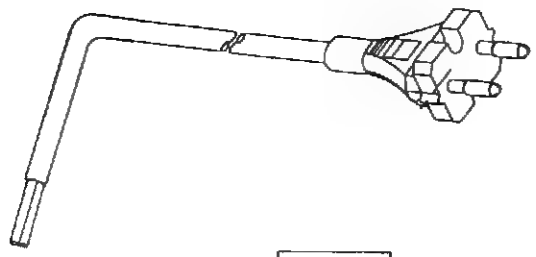
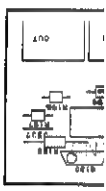
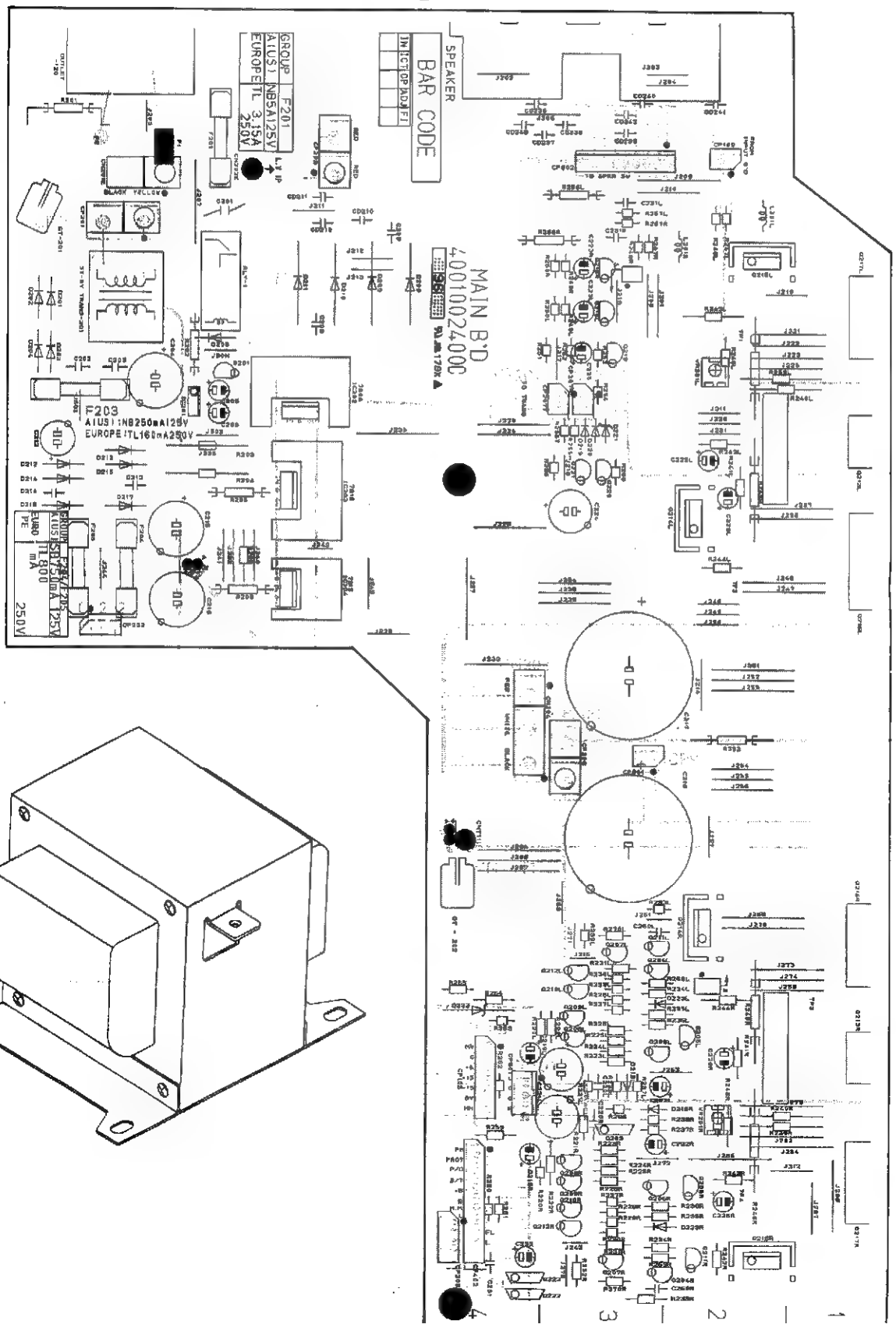
WIRING DIAGRAM



PCB7

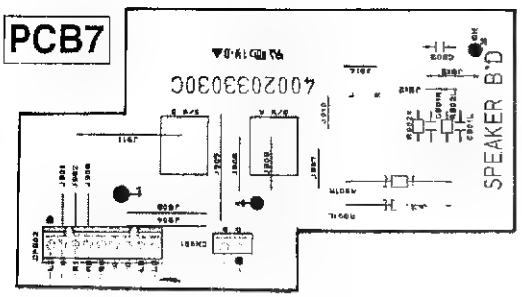


PCB1

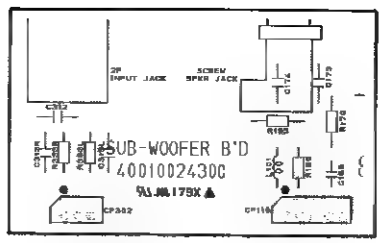


E F G H

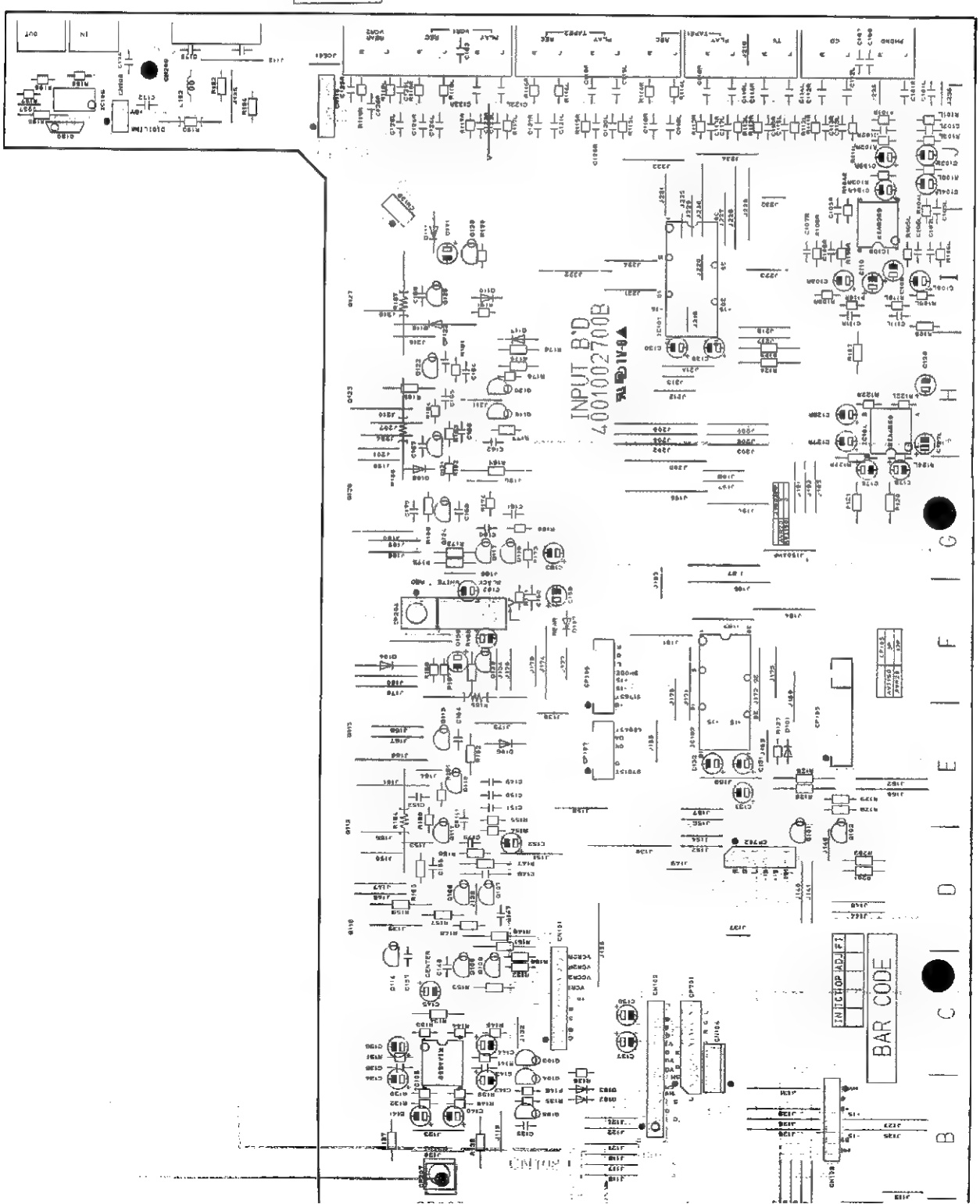
PCB7



PCB3

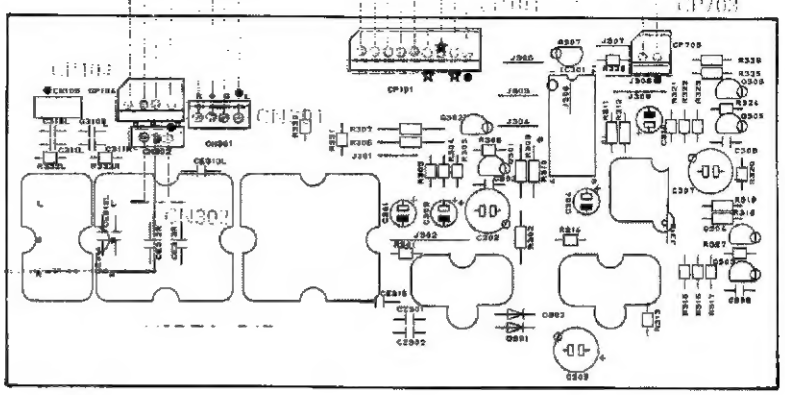


PCB9

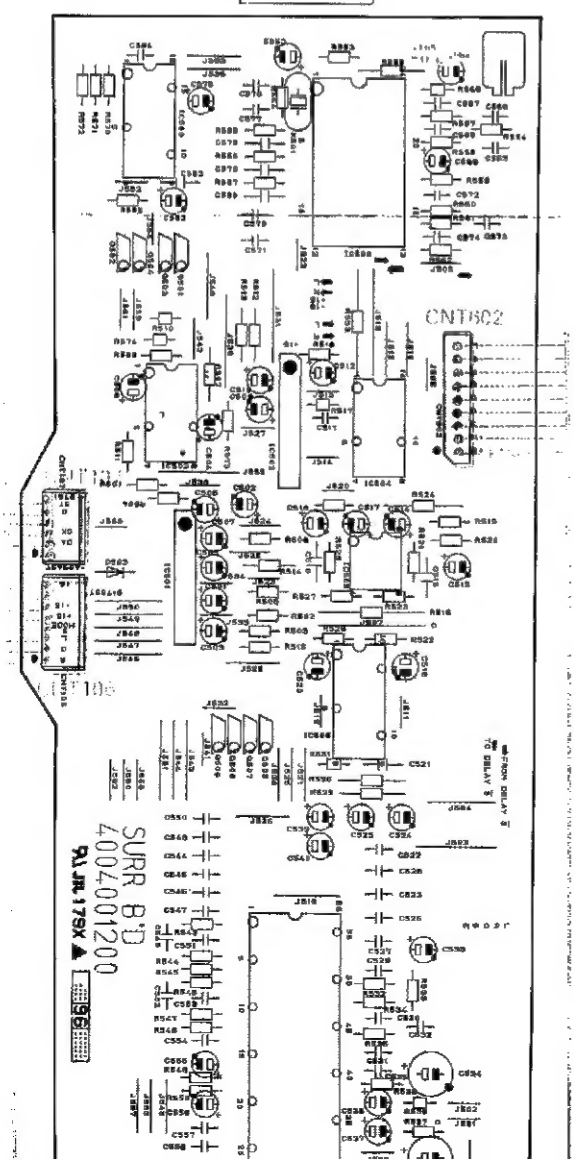


H | I | J | K

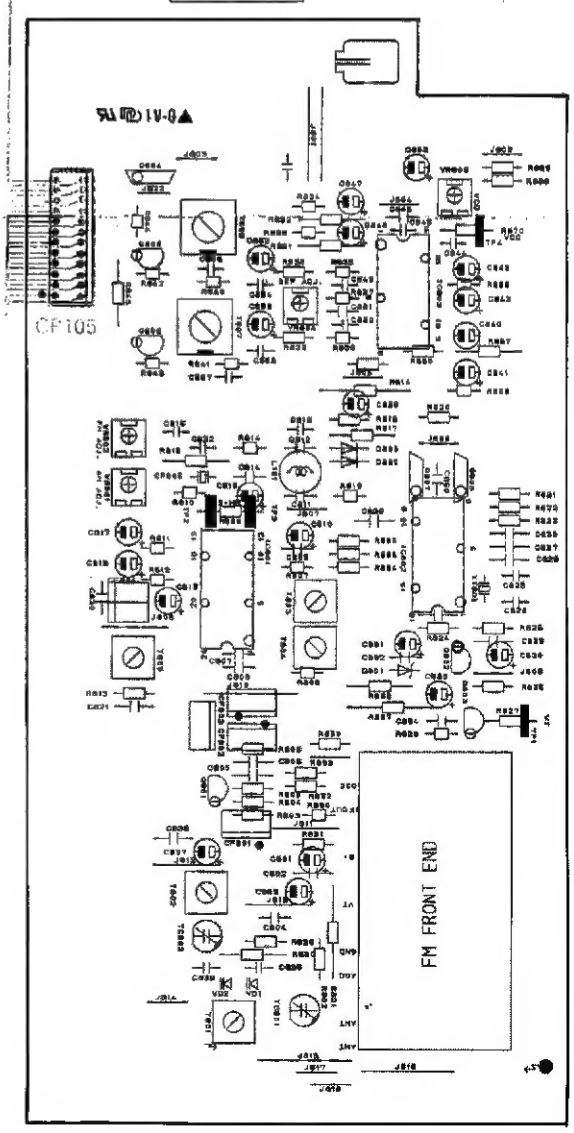
PCB2

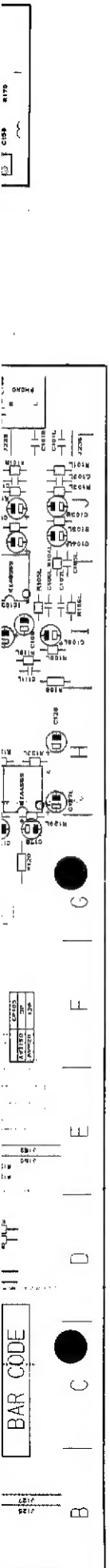


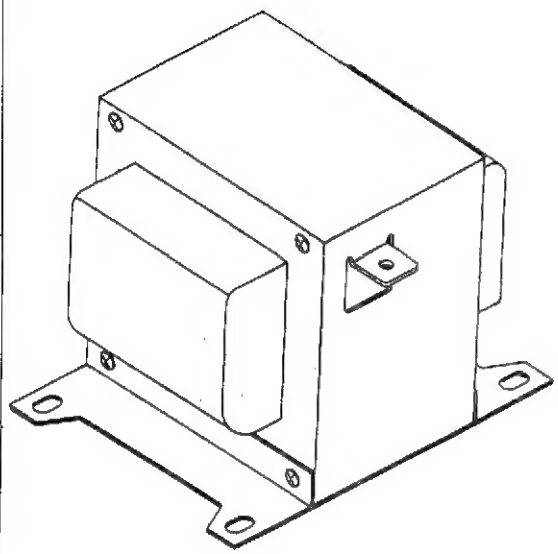
PCB11



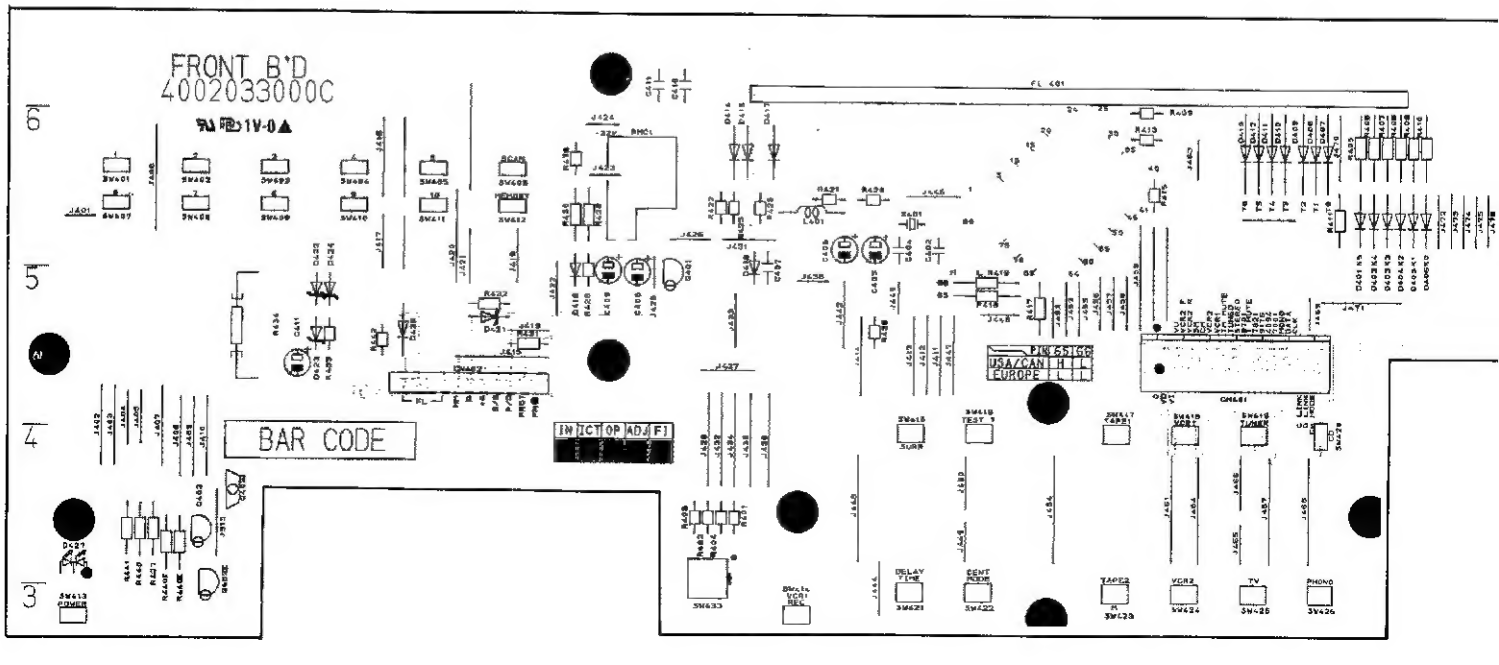
PCB10

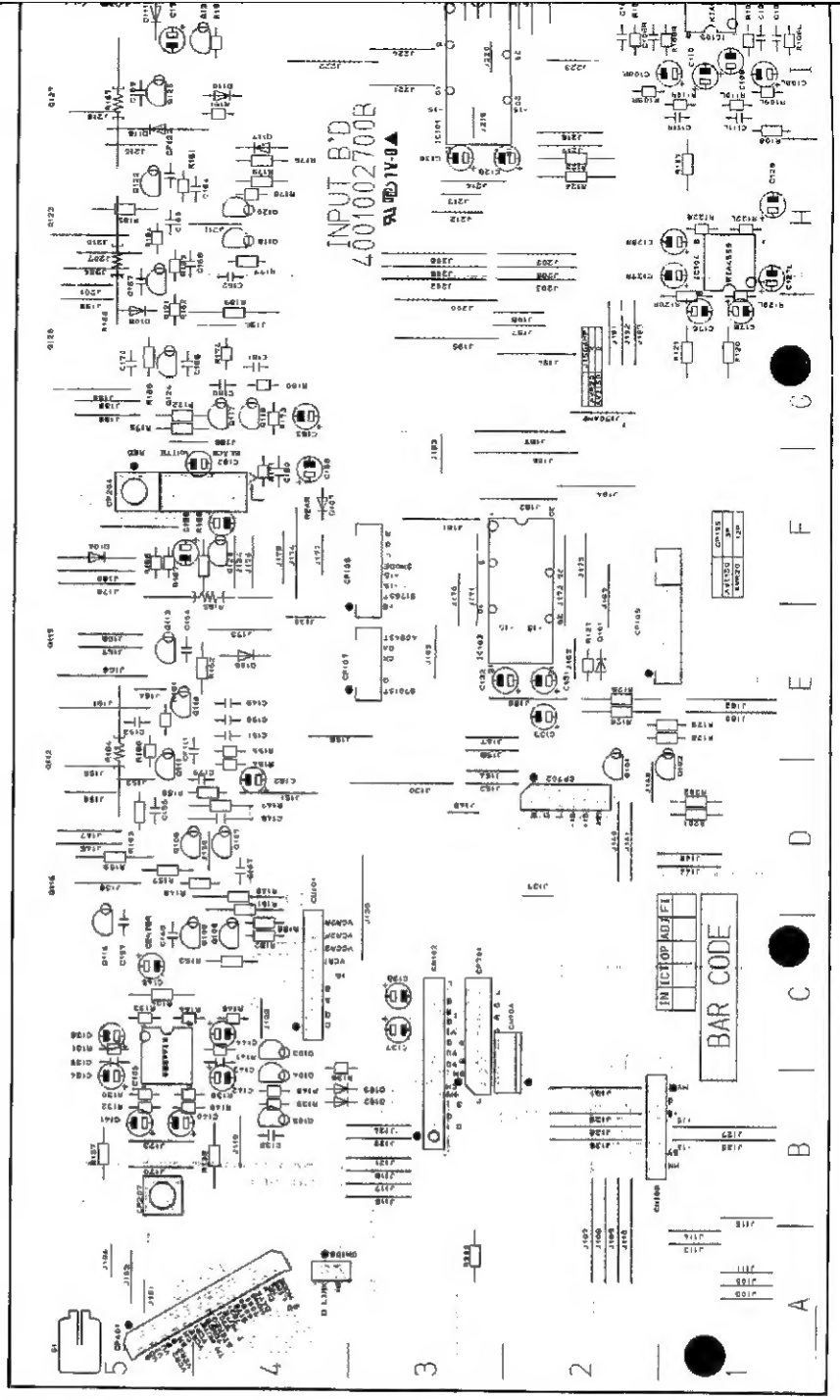


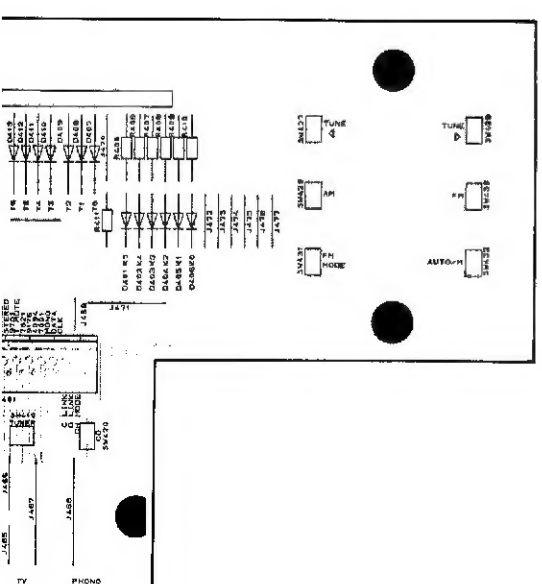




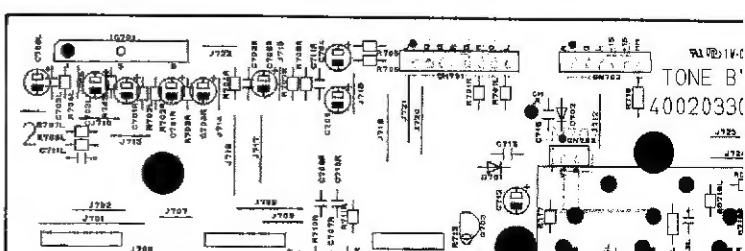
PCB4



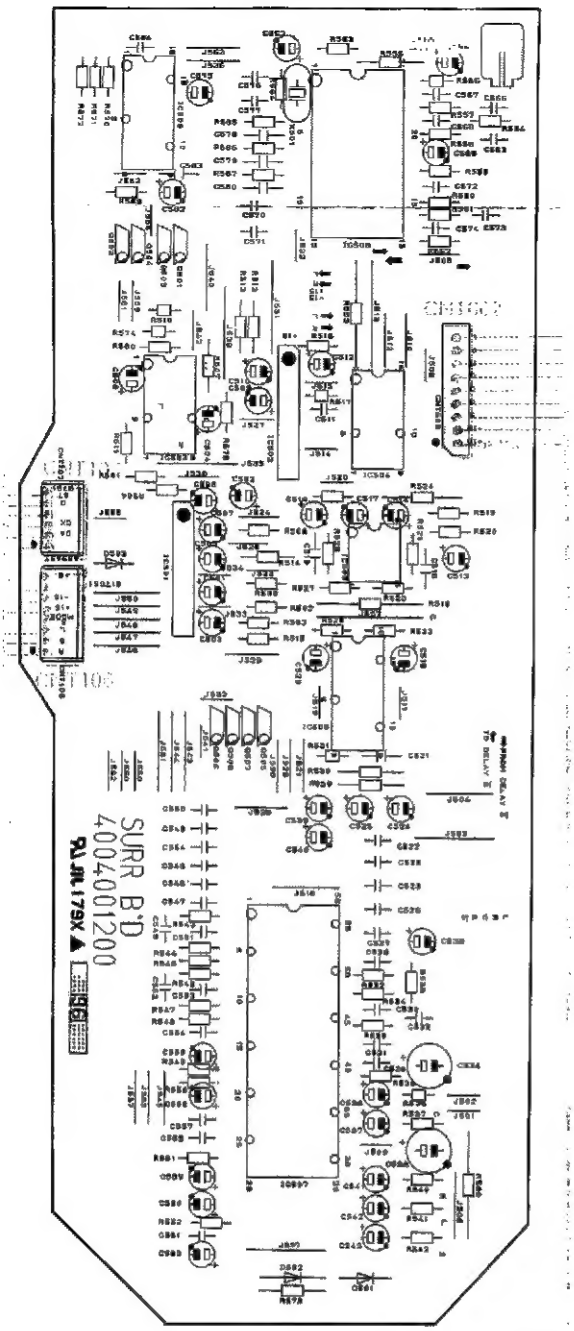

INPUT B'D
4001002700B
BAR CODE


TUNE
AM
FM MODE
TUNE
FM
AUTO-M
TV
PHONO

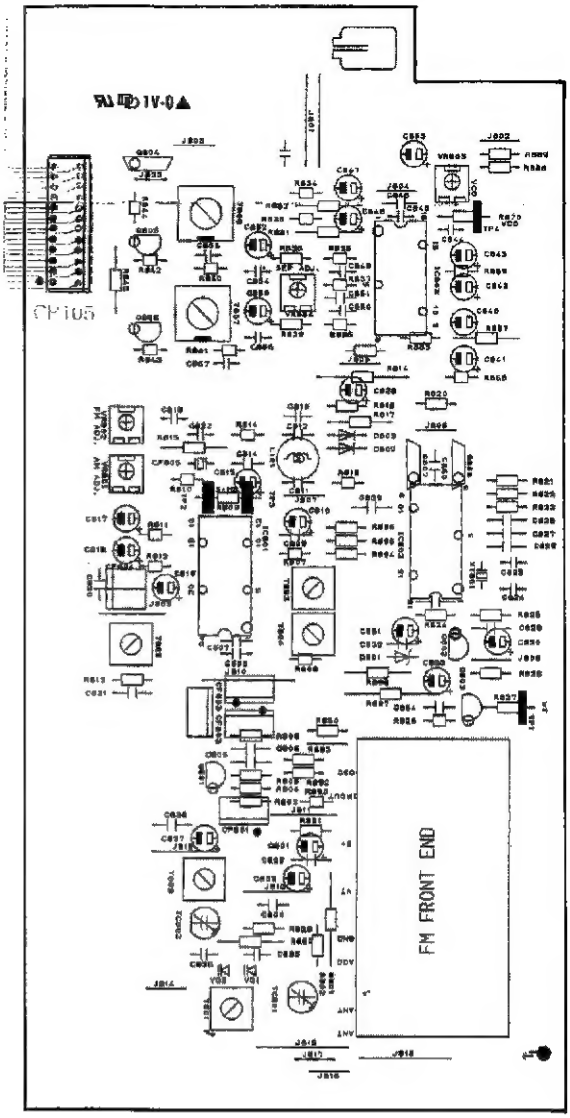
PCB5


TONE B'D
4002033
TREBLE
BASS
BALANCE

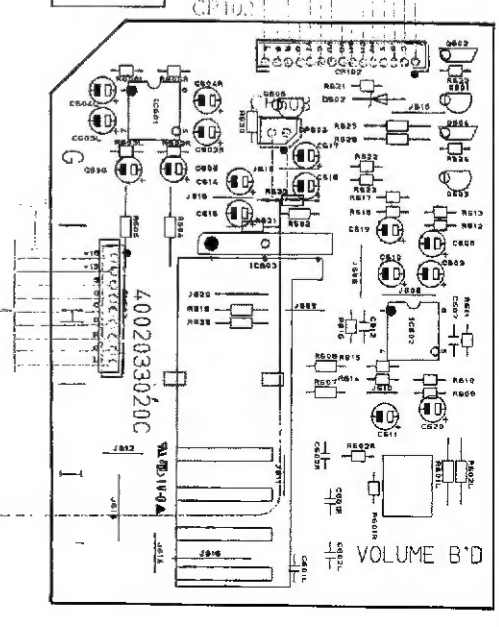
PCB11

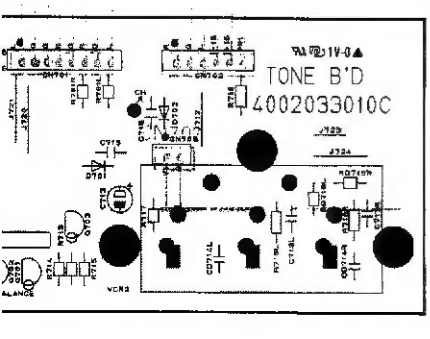


PCB10



PCB6





PCB8